Rotational internal audit programs and financial reporting quality: Do compensating controls help?☆

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A B S T R A C T

A report from the Institute of Internal Auditors finds that a majority of Fortune 500 companies systematically rotate internal auditors out of the internal audit function and into operational management (IIA, 2009a). We use semi-structured interviews with 11 chief audit executives and 2 audit committee chairmen to develop an initial framework focusing on how this practice affects financial reporting quality. We then test these associations with archival data and find that companies that use a rotational staffing model for the internal audit function have significantly lower financial reporting quality than companies that do not. However, we find that several compensating controls identified from the interviews (e.g., consistency of IAF leadership or supervision, audit committee oversight, and management oversight and direction) can reduce this adverse financial reporting effect. We conclude that companies should consider the potential costs of using a rotational staffing model in the internal audit function and, if adopting this practice, should ensure the appropriate compensating controls are in place to mitigate such costs.

Introduction

Approximately two-thirds of Fortune 500 companies report that they systematically rotate their internal auditors into management positions outside of internal audit (IIA, 2009a), this practice potentially causes the internal audit function (IAF) to be used or viewed as a training ground for future managers (IIA, 2013). This practice is somewhat perplexing given evidence from prior research suggesting it diminishes internal auditors’ objectivity (Messier, Reynolds, Simon, & Wood, 2011; Rose, Rose, & Norman, 2013). We extend prior research on the effects of systematically rotating internal auditors into operational management by conducting interviews with chief audit executives and audit committee chairpersons to develop an initial framework of how this practice is thought to impact financial reporting outcomes. We then
use this initial framework to guide an archival analysis that tests for the presence of key associations between such rotation and financial reporting quality.

The IAF is required to evaluate the risk exposure and control effectiveness of the financial reporting system (IIA, 2012). In addition, internal audit is expected to help prevent and detect fraudulent financial reporting (IIA, 2009b; IFFP, 2012) and otherwise constrain aggressive financial reporting (KPMG, 2003; Prawitt, Sharp, & Wood, 2012; Prawitt, Smith, & Wood, 2009; Ege, 2015; Norman, Rose, & Rose, 2010).1

However, internal audit functions use a variety of staffing models to fulfill their responsibilities, including a range of systematic rotational programs. Three common types of rotational programs are: (1) hiring new internal auditors from outside of the organization with the expectation that they will spend a (preset) amount of time in internal audit before being promoted into an operational management position, (2) bringing operational personnel into internal audit from within the company for a preset amount of time on their path to operational management, and (3) sending “career” internal auditors into the organization for a brief period of time to experience specific operational processes before returning to internal audit. While this spectrum of rotational programs exists in practice, prior academic literature has focused on the first two types of programs and examined how internal auditors’ ultimate goal of obtaining a management position outside of internal audit likely impacts his/her effectiveness as an internal auditor. Both academics and practitioners refer to these types of rotational programs as “management training grounds” (e.g., MTGs) because one of their main purposes is developing future managers’ skills by working in internal audit (e.g., Burton, Starliper, Summers, & Wood, 2015; Ege, 2015; IIA, 2013; Messier et al., 2011; Rose et al., 2013).

We posit that specific types of rotational programs have the potential to reduce financial reporting quality. Consistent with prior research, we focus on the systematic rotational programs that result in internal auditors later obtaining management positions because these practices are most prevalent and have the potential to impair financial reporting quality. Hereafter, we refer to these practices as “systematic rotation.” This study does not focus on the third type of rotational model, which sends career auditors into operations to gain expertise before returning to internal audit, because that type of rotational program unlikely poses the same risks to objectivity as the two other models.

We investigate whether using systematic rotation models in the IAF affects financial reporting quality in two stages. One, we draw from prior literature on external auditor reliability (e.g., DeAngelo, 1981; Taylor, DeZoort, Thomas, & Munn, 2003) and internal audit quality (e.g., Messier et al., 2011; Prawitt et al., 2009; Rose et al., 2013), as well as regulatory guidance on internal auditor independence and objectivity (IIA, 2001; IFFP, 2012) and external auditors’ reliance on internal auditors (e.g., SAS No. 128, No. 65; ISA 610; AS 5) to guide a set of interviews with 11 chief audit executives (CAEs) and 2 audit committee chairmen. Each interviewee provides insights about the use of systematic rotational programs in his/her organization, including the potential costs and benefits of systematic rotation. By integrating the results of these interviews with themes in existing literature and regulatory guidance, we develop an initial framework that we test using archival data.

From the interviews and from prior research, we posit that, in isolation, systematic rotation is likely to impair financial reporting quality. We then advance the theory and literature on this subject by examining whether compensating controls focused on IAF oversight mitigate the adverse effect on financial reporting quality. In particular, our initial framework includes three compensating controls described by our interviewees that we can test: (1) consistency of IAF leadership or supervision, (2) audit committee oversight, and (3) management oversight and direction. Prior research has not identified these potential compensating controls; however, our interviewees believe these controls mitigate the potential impairment of internal auditors’ objectivity and competence that likely arises when systematic rotational programs are used, such that the benefits of the practice outweigh the risks.2

Two, we conduct archival tests using data collected by the IIA to examine the effects of systematic rotation on financial reporting quality. This proprietary database represents one of the most complete sets of archival internal auditing data that currently exists. The data identify companies that use systematic rotation, other internal audit characteristics that help control for internal audit expertise, audit committee characteristics and activities, and other possible determinants of financial reporting quality, such as firm governance mechanisms (e.g., management and the external auditor). Our proxy for financial reporting quality is accounting risk, which we define as the risk that the audited financial statements contain misleading and/or fraudulent results (e.g., Price, Sharp, & Wood, 2011). We address selection bias arising from unobservable differences in companies that do or do not use systematic rotation with a Heckman self-selection model. Consistent with our framework, we find that use of systematic rotation is associated with higher accounting risk. This result suggests that systematic rotation weakens the effectiveness of internal audit’s monitoring of financial reporting within the organization. This result is also consistent with the view from prior research that some rotational IAFs operate primarily as a management training ground, at the expense of the effectiveness of traditional internal audit activities.

However, consistent with our predictions, other organizations implement compensating controls that mitigate this negative relation. Specifically, organizations that (1) rotate only staff internal audit positions (e.g., not the head

1 In the most recent Comprehensive Body of Knowledge (CBoK) survey conducted by the Institute of Internal Auditors (IIA), approximately 72% of respondents indicate that their IAF performed audits of financial risks and 71% report that they perform fraud investigations, representing the third and fourth most commonly performed activities, respectively.

2 While not the focus of this paper, our interviewees also described several important benefits of using rotational programs. We include insights related to these benefits, when relevant, throughout the paper and provide a list of benefits in Table 2.
of internal audit), (2) have more effective audit committees, or (3) have management who directs internal audit to focus on financial reporting (as opposed to operational or IT audits) are able to reduce the negative financial reporting effects associated with systematic rotation of internal auditors into management positions. Further, at least in this data, when all three types of compensating controls are present, the negative association between systematic rotation and financial reporting quality is eliminated. Thus, our results suggest that control-conscious organizations can use compensating controls to prevent systematic rotation from reducing financial reporting quality.

Our study contributes to the literature in several ways. First, our interviews with CAEs and audit committee chairpersons identify important institutional details about using systematic rotation. Interviewees describe many benefits of the practice (e.g., helps attract and retain talent, improves organizational expertise with the IAF), which helps explain why so many organizations use systematic rotation despite potential negative consequences. Our interviews also identify control practices that companies use to reduce the risk of impaired IAF objectivity and competence. These institutional details allow us to develop and refine an initial framework of the effect of systematic rotation on financial reporting quality, and they guide our archival analysis.

Second, we complement and extend prior research by showing that systematic rotation of internal auditors into management positions is associated with higher accountability risk. Complementing experimental evidence from prior research suggests that systematic rotation can reduce internal auditors’ objectivity and external auditors’ perceptions of internal audit objectivity (Messier et al., 2011; Rose et al., 2013), archival associations reported herein are consistent with our framework’s prediction, i.e., these rotations can impair internal auditors’ objectivity to the point of lowering financial reporting quality. Further, these associations obtain despite compensating work that may be performed by the external auditor.

Third, in further tests of our framework, however, we test several compensating controls described by our interviewees, which moderate the negative effect of systematic rotation on financial reporting quality. These compensating controls provide various oversight mechanisms within the company intended to improve the IAF’s willingness and capacity to prevent and/or detect low quality financial reporting. This aspect of our study builds on Rose et al. (2013), who examine whether giving directors power over the appointment of senior managers influences the adverse effect of systematic rotation; however, Rose et al. (2013) do not investigate the broader issue of corporate governance strength, such as audit committee oversight and effectiveness. In addition, prior research has not examined IAF leadership consistency or management’s direction for the IAF as compensating controls.

Finally, we contribute to the literature and to practice by providing evidence on the effects of using the CAE position as a rotational position. Many of our interviewees expressed concerns about internal audit competence and objectivity when the head of internal audit is a rotational position, and our archival analysis confirms that rotating the head of internal audit is associated with low financial reporting quality. The results of our analysis inform the on-going debate among practitioners regarding the appropriateness of this practice. Overall, our results add to the limited prior literature on how the IAF affects its organization’s economic, operational, and financial reporting outcomes.

Evidence on the consequences of systematic rotation will also be interesting to investors, boards of directors, audit committees, and management. These stakeholders rely on the IAF to monitor financial reporting, and they can benefit from evidence about how systematic rotation affects financial reporting quality. Furthermore, regulators and standard setters, such as the IIA, would benefit from understanding how these rotational assignments affect financial reporting quality and what organizations can do to address the potential consequences.

In the next section, we use the literature on internal auditor quality to begin to develop our initial framework and develop our hypothesis on the effect of systematic rotation on financial reporting quality. We then describe our interview method, after which we use the insights gained from our interviews to refine our initial framework and develop hypotheses on the moderating effects of three compensating controls. The section titled ‘Archival data and model specification’ describes our archival analysis. We report the results of our hypotheses tests in the subsequent section and then conclude.

IAF quality and financial reporting quality

The IAF is one of the cornerstones of effective corporate governance and financial reporting (IIA, 2003; Gramling, Maletta, Schneider, & Church, 2004, Reding et al., 2009). By the IIA’s definition, internal audit should bring a “systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes” (IIA, 2011a). Standards for the internal auditing profession affirm the IAF’s responsibility to monitor financial reporting (e.g., IPPF, 2012) and help detect and deter fraud (e.g., IIA, 2009b; IPPF, 2012), as well as reduce related losses (Coram, Ferguson, & Moroney, 2008; Ege, 2015; KPMG, 2003; Norman et al., 2010).

Prior academic research similarly has shown that an effective IAF improves: risk assessments (Asare, Davidson, & Gramling, 2008; Sarens & De Beelde, 2006), safeguarding of assets (Beasley, Carcello, Hermanson, & Lapides, 2000; Coram et al., 2008), earnings quality (Abbott, Daugherty, Parker, & Peters, 2013; Prawitt et al., 2009), deterrence of management misconduct (Ege, 2015), internal control strength (Lin, Pizzini, Vargus, & Bardhan, 2011), audit quality (Prawitt et al., 2012), and audit efficiency (Felix, Gramling, & Maletta, 2001; Pizzini, 2005). 3

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3 Rose et al. (2013) find that empowering the board of directors to promote internal auditors into senior management positions increases the adverse effect of systematic rotation on objectivity.

Prior research generally considers internal auditing at a relatively high level (e.g., an overall composite measure of internal audit strength) and institutional details of the internal auditing environment are sometimes overlooked (Koonce, 2013). Thus, one purpose of this paper is to provide rich institutional details from interviews with heads of internal audit (i.e., chief audit executives) and audit committee chairmen who describe how internal audit is practiced. We then use these institutional details to develop an initial framework to guide our archival analysis.

We begin by reviewing the existing academic research, practitioner literature, and regulatory guidance on internal and external auditor reliability. We extract common elements and to develop an initial framework of factors that (should) impact the IAF’s effect on financial reporting quality. In particular, we draw from: (1) The International Standards for the Professional Practice of Internal Auditing promulgated by the IIA, which provide the basic requirements for internal auditing; (2) various external audit standards that govern how external auditors are to evaluate IAFs when using their work as part of the external audit4; (3) DeAngelo’s (1981) model describing external audit quality as a function of auditor technical ability and independence/objectivity; and (4) Taylor et al.’s (2003) framework describing external auditor reliability as a function of expertise, objectivity, independence, and integrity.5 Although DeAngelo’s model and Taylor et al.’s (2003) framework focus on external auditor quality and reliability, respectively, the underlying components are relevant to internal auditors as well.6 Indeed, Taylor et al. (2003) state that their framework “has the potential to clarify responsibilities and guide other critical financial reporting and corporate governance groups, such as internal auditors” (264).

Our examination of these sources reveals two important commonalities. First, objectivity is central to high quality auditing. For example, Taylor et al. (2003) argue that external auditor reliability “can be achieved only by the relentless pursuit of objectivity” (p. 262). Similarly, internal audit standards state that “internal auditors must be objective in performing their work...Objectivity is an unbiased mental attitude that allows internal auditors to perform engagements in such a manner that they believe in their work product and that no quality compromises are made. Objectivity requires that internal auditors do not subordinate their judgment on audit matters to others” (IPPF, 2012, pp. 3–4). Finally, for evaluating internal auditors, AS 5 states “the auditor should not use the work of [internal auditors] who have a low degree of objectivity, regardless of their level of competence.”

Second, the competence or expertise of internal auditors also is key. Internal audit standards state that “internal auditors must possess the knowledge, skills, and other competencies needed to perform their individual responsibilities” (IPPF, 2012, p. 5). ISA 610 (revised) states, “Competence of the internal audit function refers to the attainment and maintenance of knowledge and skills of the function as a whole at the level required to enable assigned tasks to be performed diligently and in accordance with applicable professional standards” (p. 13). Other external audit standards mirror this language, and the DeAngelo (1981) model and the auditor reliability framework (Taylor et al., 2003) suggest expertise is a key component of external audit quality. In sum, all of the sources we have reviewed consider objectivity and competence to be central to high performing IAFs.7

Importantly, systematic rotation has the potential to impair the objectivity and competence of the internal audit function. Although there exists a spectrum of rotational staffing models used by organizations, we follow prior literature and focus on rotational models that result in internal auditors systematically leaving the IAF for management positions (e.g., Ege, 2015; Messier et al., 2011). In one such model, the IAF hires new auditors from outside the company, promising them a short tenure (e.g., two to three years) in internal audit followed by the opportunity to assume management positions within operations. Alternatively, other organizations populate the internal audit function with existing operational personnel who use a short term in the IAF to become knowledgeable about risk and control before being promoted into other operational positions.8 While there are notable differences in these two rotational staffing models, each is likely to have similar effects on the objectivity and competence of the internal auditors within them because the internal auditors are motivated by the ultimate goal of obtaining future

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4 We refer to SAS No. 128, Using the Work of Internal Auditors (which supersedes SAS No. 65, The Auditor’s Consideration of the Internal Audit Function in an Audit of Financial Statements); ISA 610 (revised 2013), Using the Work of Internal Auditors; and AS 5, An Audit of Internal Control Over Financial Reporting that is Integrated with an Audit of Financial Statements. A significant body of research supports that external auditors follow these standards when evaluating IAFs (e.g., see Bame-Aldred, Brandon, Messier, Rittenberg, & Stafaniak, 2013; Glover, Prawitt, & Wood, 2008; Gramling et al., 2004).

5 Taylor et al. (2003) develop the external auditor reliability framework which is tested by DeZoort, Holt, and Taylor (2012).

6 Prior research often uses the terms reliability and quality interchangeably (e.g., Taylor et al., 2003). Similarly, the terms competence/expertise and objectivity/independence are also often used interchangeably in the literature. Differentiating between each of these concepts is beyond the scope of this paper. Therefore, when discussing prior literature we use the term(s) used in each specific paper and as a result, also use the terms somewhat interchangeably.

7 Each source also describes other attributes of a high quality IAF. For example, the internal audit standards suggest the importance of quality assurance programs and specific performance standards (e.g., guidelines of how to plan, perform the engagement, and communicate findings). External auditing standards state that the internal auditors’ work must relate to the external audit, and the external auditor reliability framework focuses on other factors that increase objectivity, such as integrity and independence. We retain the simple two-factor model of objectivity and competence to guide our interviews because objectivity and competence are common across all sources we reviewed and because other factors often lead to objectivity and competence (e.g., see discussion in Taylor et al., 2003).

8 Home Depot has publicized its use of systematic rotation to hire new auditors into the organization from the outside, with the express intent to go into a business manager role after two years. GE is one of the most prominent companies to employ systematic rotation to staff the internal audit department with current operational personnel who intend to advance to higher positions after a stint in internal audit (Baker, 2010). Organizations also vary in the extent to which rotating into or out of internal audit within a certain timeframe is optional (Baker, 2010).
positions outside of the IAF.\textsuperscript{9} We consider these two rotational staffing models together, which is consistent with prior literature (e.g., Ege, 2015; Messier et al., 2011; Rose et al., 2013).

Fig. 1 illustrates the theoretical relationships modeled in our initial framework of the effect of systematic rotation of internal auditors on financial reporting quality.

Objectivity

Systematic rotation could impair internal auditors’ objectivity by creating a dependent relationship between the internal auditors and members of management who are considering them for promotion (Chadwick, 1995; Hoos, Messier, Smith, & Tandy, 2014; Wood & Wilson, 1989). As noted in Stewart and Subramaniam (2010), systematic rotation can induce social pressures and economic interest threats to the independence and objectivity of the IAF. In particular, there is the potential for systematic rotation to focus internal auditors on obtaining or performing future positions outside of the internal audit department, diminishing their objective assurance over financial reporting processes.\textsuperscript{10}

This potential is consistent with the general conclusion of prior studies on systematic rotation. Using experiments, Hoos et al. (2014) and Rose et al. (2013) provide evidence that internal auditors are less objective given systematic rotation.\textsuperscript{11} Relatedly, Messier et al. (2011) find that external auditors perceive rotational internal auditors to be less objective, and that audit fees are higher for companies that rotate internal auditors into operations. The latter effect is interpreted as evidence that the external auditors do more work to compensate for the (perceived) impaired objectivity of rotational auditors. Taken together, prior literature suggests systematic rotation causes impaired objectivity.

Competence

Systematic rotation could compromise the internal audit competence of the IAF for several reasons. One, employees who view internal audit positions as a stepping stone to management opportunities are less likely than others to pursue training and certifications that would improve their internal audit competence (Anderson, 2010). Two, the constant rotation out of the IAF diminishes overall IA experience and expertise relative to models with “career” auditors (Anderson, Christ, Johnstone, & Rittenberg, 2010).

Research examining whether rotational staffing models affect internal auditors’ competence is less prevalent than examinations of its effects on independence and objectivity and yields somewhat mixed results. The same Messier et al. (2011) paper discussed earlier reports no difference in how external auditors perceive the competence of non-rotational versus rotational internal auditors. However, Ege (2015) uses archival data from the IIA and finds that measures of internal auditor competence (e.g., internal audit certifications and experience) are negatively correlated with systematic rotation. Thus, it is reasonable to conclude that the internal audit competence of a rotational IAF will be similar or lower (but not higher) than that of an IAF that does not use systematic rotation.

Taken together, previous literature suggests that using systematic rotation is likely to be associated with lower objectivity, and possibly lower competence among internal auditors. Therefore, when considering the overall relationship between systematic rotation and financial reporting quality, we predict that it will be associated with weaker financial reporting quality than non-rotational internal audit departments.\textsuperscript{12} Stated formally:

\textbf{H1.} Systematic rotation lowers financial reporting quality.

We next describe our interview process that led us to further develop our framework.

\textbf{Interview method}

We interviewed heads of internal audit (i.e., CAEs) from 11 companies of varying sizes and industries and two audit committee chairpersons who (combined) have worked with 12 unique companies.\textsuperscript{13} Table 1 provides demographic information for our interviewees. Our heads of internal audit vary in direct experiences with systematic rotation. Eight of eleven companies use formal rotation programs, one uses informal rotation, and two do not use rotation. However, all of our interviewees indicated they had considered and discussed this practice within their organizations. Similarly, both audit committee chairmen sat on boards of companies that did and did not use rotational models, and both were knowledgeable about the practice.

Our goal in obtaining this varied sample was to learn both positive and negative perspectives about systematic rotation, especially aspects of the practice that may influence the objectivity and competence of the IAF and, as a result, financial reporting quality. We developed a semi-structured interview protocol (see Appendix A) with open-ended questions (Lillis & Mundy, 2005; Yin, 2009).\textsuperscript{14} Interviews began with questions about the

\textsuperscript{9} One notable difference between these models is that rotational models that hire new auditors from outside the company are less likely to gain organizational knowledge and expertise, which is a potential benefit when existing operational employees rotate through the IAF. This benefit is discussed more thoroughly in a later subsection.

\textsuperscript{10} For additional discussion of how rotational internal auditors may be consciously or unconsciously biased, see Rose et al. (2013) and Kooce (2013).

\textsuperscript{11} Hoos et al. (2014) show that rotational internal auditors are more likely than non-rotational internal auditors to make recommendations that management would prefer. Similarly, Rose et al. (2013) find that rotational auditors are more likely than non-rotational auditors to agree with management’s aggressive accounting policies.

\textsuperscript{12} There is an additional reason we may not observe the relation hypothesized in H1. The results of Messier et al. (2011) suggest that external auditors are concerned about the potential lack of objectivity in rotational IAFs; therefore, they price external audit services higher for these firms. If external auditors do more work to compensate for the lower objectivity of the IAF, rotation will have no effect on financial reporting quality.

\textsuperscript{13} The audit committee chairmen served on the boards for multiple companies, so we do not include them in cited statistics but rather discuss their responses in general when they provide pertinent additional details.

\textsuperscript{14} Semi-structured questions allow for consistency, and thus higher internal validity, while not restricting our ability to uncover new ideas and concepts.
background of the organization, the head of internal audit (or audit committee member), and the IAF. Interviews progressed to discuss specific experiences with systematic rotation as well as the benefits and drawbacks of this practice for internal auditors’ objectivity and competence. We concluded the interviews by asking for descriptions of practices (i.e., compensating controls) used to ensure that the systematic rotation was successful. Interviews lasted an average of 46 min. In Table 2 we report the risks, benefits, and compensating control identified by CAE interviewees and the number of individuals who specifically mentioned each.

To identify interviewees, we contacted the IIA who reached out to potential interviewees on our behalf. Six of eleven (55%) interviewees are from Fortune 500 companies. Internal audit department size ranges from 3 to 97 employees, and interviewees’ experience in their current position ranges from 1 to 25 years. We identified audit committee member interviewees through accounting professors from two universities. The audit committee members represent 12 unique companies (9 public and 3 private), all with revenues over $1 billion in 2013.

One author conducted telephone interviews with all heads of internal audit. Two authors conducted audit committee chairmen interviews in person. In general, we asked questions in the order shown in the interview protocol; however, we allowed interviewees to elaborate and move to relevant or related topics naturally. We asked clarifying questions as needed.

All interviews were recorded and transcribed, and later coded independently by one author and one research assistant.
assistant. To code the interviews, one author reviewed each transcript and identified specific passages in which an interviewee mentioned a risk or benefit of systematic rotation or a compensating control. The author then categorized each passage as a risk, benefit, or control. The research assistant then independently reviewed the interviews, identified passages, and assigned each to one of the same categories (i.e., risk, benefit, or control). Any passages that the second coder could not categorize within the initial set of choices were temporarily coded as other. The coders identified 133 passages related to risk (35), benefits (54), and compensating controls (44). Inter-rater agreement after the first pass was 94%. The coders examined and discussed any discrepancies until agreement was reached.

Reframing our initial framework for the effects of systematic rotation on financial reporting quality

In this section, we report insights from our interviews. In general, the interviewees’ comments support our prediction in H1 that systematic rotation tends to cause lower financial reporting quality, at least in absence of compensating controls. In particular, our interviewees discussed how systematic rotation lowers internal auditor objectivity and competence—and is therefore likely to impair the organization’s financial reporting quality (if left unchecked).

Additionally, interviewees indicate it is important to expand our framework to consider compensating controls that are likely to moderate these negative relationships. Consistent with Taylor et al.’s (2003) conjecture that other types of quality controls (e.g., training, reviews) may compensate for a lack of external auditor independence, our interviewees suggest that the following control mechanisms can mitigate the adverse effects of systematic rotation: (1) consistent and continuous IA supervision, (2) audit committee’s oversight of the IAF, and (3) management’s oversight of and direction for the IAF. Our interviewees described these factors as a key compensating control that mitigates the risk of diminished objectivity and/or competence in internal auditors due to systematic rotation. We extend prior literature by including these controls in our initial framework (see Fig. 1).

Objectivity and competence

Many of the internal auditors we interviewed agreed to some extent that systematic rotation can impair objectivity, competence or both. Eight of the eleven (73%) CAEs acknowledged that internal auditor objectivity could be impaired by systematic rotation. For example, CAE9 remarked,

“That is a clear risk if they come in with the wrong mind set [that] I’m just going to make friends and not call things out in order to get a job in another area...”

Similarly, CAE5 explained,

“For instance, you do an audit in an area, and somebody pulls a punch on a finding and doesn’t report the finding because ‘gee, you know, I talked to so and so, and they’re going to offer me this job when I get done with this audit....’ So you have that risk.”

Furthermore, CAE3 stated,

“There is always [an objectivity] risk. If you’ve kind of got your eye on sort of a sweet job out there that you’d like to get, it comes into question of how likely is it that you’re going to really raise a serious audit finding if you know it’s going to be...a hard sell. I think that is a risk”

With respect to competence, 8 of 11 (73%) interviewees acknowledged that when internal auditors rotate out of the IAF and into the organization, there is the potential for a loss of internal audit expertise. For example, CAE10 described concerns about IAFs that rotate all internal audit positions (i.e., no core group of “career” auditors is retained):

“I would argue if...[we’re] turning over my entire internal audit group every two years...If I’m a board member, an audit committee member, I would look back and say, ‘How can you be giving me quality assessments and quality audit work if everybody in your staff

Table 1
Interview participant demographics.

<table>
<thead>
<tr>
<th>Identifier</th>
<th>Title</th>
<th>Years in current position</th>
<th>Industry</th>
<th>2013 Revenue</th>
<th>Size of IA</th>
<th>Systematic rotation?</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAE1</td>
<td>VP Internal Audit</td>
<td>5</td>
<td>Food</td>
<td>10–20 billion</td>
<td>40</td>
<td>Yes</td>
</tr>
<tr>
<td>CAE2</td>
<td>VP Internal Audit</td>
<td>5</td>
<td>Financial Services</td>
<td>1–5 billion</td>
<td>16</td>
<td>Yes (informal)</td>
</tr>
<tr>
<td>CAE3</td>
<td>Internal Audit Director</td>
<td>5</td>
<td>Pharmaceutical</td>
<td>1–5 billion</td>
<td>3</td>
<td>Yes</td>
</tr>
<tr>
<td>CAE4</td>
<td>Internal Audit Director</td>
<td>7</td>
<td>Real Estate</td>
<td>5–10 billion</td>
<td>13</td>
<td>Yes</td>
</tr>
<tr>
<td>CAE5</td>
<td>VP Internal Audit</td>
<td>10+</td>
<td>Transportation</td>
<td>20–40 billion</td>
<td>40</td>
<td>Yes</td>
</tr>
<tr>
<td>CAE6</td>
<td>VP Internal Audit</td>
<td>2</td>
<td>Food Services</td>
<td>1–5 billion</td>
<td>7</td>
<td>Yes</td>
</tr>
<tr>
<td>CAE7</td>
<td>Group Head of Audit</td>
<td>1.5</td>
<td>Oil &amp; Gas</td>
<td>5–10 billion</td>
<td>8</td>
<td>No</td>
</tr>
<tr>
<td>CAE8</td>
<td>Chief Audit Executive</td>
<td>2</td>
<td>Professional Services</td>
<td>20–40 billion</td>
<td>23</td>
<td>Yes</td>
</tr>
<tr>
<td>CAE9</td>
<td>Interim Chief Audit Executive</td>
<td>1</td>
<td>Retail</td>
<td>10–20 billion</td>
<td>30</td>
<td>Yes</td>
</tr>
<tr>
<td>CAE10</td>
<td>VP Internal Audit</td>
<td>8</td>
<td>Chemical</td>
<td>1–5 billion</td>
<td>9</td>
<td>No</td>
</tr>
<tr>
<td>CAE11</td>
<td>Chief Audit Executive</td>
<td>5</td>
<td>Financial Services</td>
<td>20–40 billion</td>
<td>97</td>
<td>Yes</td>
</tr>
<tr>
<td>AC1</td>
<td>Audit Committee Chair</td>
<td>Varies</td>
<td>4 public, 3 private: various</td>
<td>All &gt; 1 billion</td>
<td>Varies</td>
<td>Varies</td>
</tr>
<tr>
<td>AC2</td>
<td>Audit Committee Chair</td>
<td>Varies</td>
<td>5 public: various</td>
<td>All &gt; 1 billion</td>
<td>Varies</td>
<td>Varies</td>
</tr>
</tbody>
</table>
has only been with the [IAF] organization for two years or less?"

Similarly CAE7 said:

“If you had an audit team that was full of … rotational type people, you probably wouldn’t build up that sort of expertise and knowledge. I could see a risk of a pure rotational type function. You would just lose a lot of corporate knowledge, and [that is a] key thing I would think about.”

However, several CAEs (6 out of 11) also described an increase in organizational expertise gained from systematic rotation—a potential benefit not considered in prior academic research. Organizational expertise relates to knowledge about the specific operations and procedures that compose the core processes of the business. For example, if an individual from manufacturing spends a two-year rotation in internal audit as a stepping stone to a management position, (s)he will bring specific knowledge about manufacturing processes, risks, and controls into the internal audit function that may be difficult to gain simply by auditing that process. In fact, many of our interviewees believed the gain in organizational expertise could outweigh the loss of audit expertise. For example, CAE4 said, “When you talk about competency, if you’re talking about competency of the department, if we didn’t have rotational [auditors], there would be more people involved in internal auditing, and probably more sophisticated internal auditing; but as far as expertise, having rotational [auditors] enlightens people and provides more wisdom to them from the competencies that they’re bringing in, so it enhances the department totally.”

Also related to competence, Burton et al. (2015) find that more accounting students are willing to apply for an internal auditing position if it will include systematic rotation. This suggests that rotational IAFs will have a deeper pool of candidates from which to hire better quality professionals. Many of our interviewees echoed this sentiment. In particular, 6 of the 11 (55%) CAE interviewees specifically mentioned that systematic rotation helps them recruit and retain quality internal auditors. For example, as CAE6 described, “It’s a great way to hire great people, and high-potential people. If you’re just hiring internal auditors who are qualified for the position to be internal auditors, you probably aren’t going to get many of the best. So it puts you in the market.”

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Number of interviewees describing (n = 11)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel A: Benefits of systematic rotation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IA exposes auditors to entire business</td>
<td>9</td>
<td>82</td>
</tr>
<tr>
<td>Enhances risk &amp; control mindset throughout the organization</td>
<td>7</td>
<td>64</td>
</tr>
<tr>
<td>Recruiting/retention</td>
<td>6</td>
<td>55</td>
</tr>
<tr>
<td>Fresh perspective/institutional knowledge gained in IA</td>
<td>6</td>
<td>55</td>
</tr>
<tr>
<td>Career mobility</td>
<td>4</td>
<td>36</td>
</tr>
<tr>
<td>Enhances IA’s reputation throughout the organization</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>Motivational for current internal auditors</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>Exposes internal auditors to more executives</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>Effective “interview” for operational management</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>Panel B: Downsides of systematic rotation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can hinder objectivity/independence</td>
<td>8</td>
<td>73</td>
</tr>
<tr>
<td>Can hinder competence/expertise</td>
<td>8</td>
<td>73</td>
</tr>
<tr>
<td>IA loses good internal auditors</td>
<td>3</td>
<td>27</td>
</tr>
<tr>
<td>Difficult to manage outflow of personnel</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>Constantly hiring</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>Constantly training</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>Panel C: Important compensating controls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consistency/stability in of IA supervision</td>
<td>7</td>
<td>64</td>
</tr>
<tr>
<td>Audit committee oversight/direction</td>
<td>6</td>
<td>55</td>
</tr>
<tr>
<td>IAs do not audit a department for which they have worked (1 yr)</td>
<td>6</td>
<td>55</td>
</tr>
<tr>
<td>Hiring practices</td>
<td>5</td>
<td>45</td>
</tr>
<tr>
<td>Careful supervisory review</td>
<td>5</td>
<td>45</td>
</tr>
<tr>
<td>Training/mentoring</td>
<td>5</td>
<td>45</td>
</tr>
<tr>
<td>Management oversight and direction</td>
<td>4</td>
<td>36</td>
</tr>
<tr>
<td>Conflict of interest statement</td>
<td>2</td>
<td>18</td>
</tr>
</tbody>
</table>

Panels A and B show the number of interviewees who indicated that each of the following benefits and risks exists when using systematic rotation. In panel C we report the number of CAEs who described each compensating control. Each risk, benefit, and/or compensating control listed below was identified by the CAE interviewees.
Similarly, CAE5 explained,

“[The] rotational program is good from the department standpoint, because you’re going to have highly motivated people. You're going to have people who seek career opportunities. You're going to have people who really are going to go in there and want to do their best job because that’s how they’re going to get the, you know, attention of people in the company to want to hire them into their organizations, their departments. So you don’t have to motivate people.”

Both audit committee chairmen echoed the belief that using a systematic rotational staffing model attracts more and better people.

In summary, although prior academic research provides relatively little evidence about the effect on competence of systematic rotation, our interviews suggest this can have both positive and negative effects on IAF competence. Interviewees suggest that systematic rotation could increase internal auditors’ competence by attracting more and better people, and the IAF can benefit from the operational expertise of operational personnel rotating through the department. On the other hand, a high rate of turnover within the internal audit department can also lead to a loss of technical audit skills and audit expertise. On balance, however, the loss of internal audit competence has the potential to hamper financial reporting quality. Thus, taken together, our interviewees provided insights suggesting that systematic rotation poses risks of impaired objectivity and competence consistent with our prediction in H1.

Compensating controls

Our interviews revealed several critical compensating controls companies can use to mitigate the impairment of objectivity and (possibly) competence associated with systematic rotation. The compensating controls described by the interviewees provide various forms of oversight over the IAF which can improve the IAF’s willingness and capacity to prevent and/or detect low quality financial reporting. We conclude that the CAEs believe these controls reduce the risk of impaired objectivity and competence sufficiently that the benefits of using the systematic rotational models exceed the risks. This is consistent with Goodwin and Yeo’s (2001) finding that nearly half of surveyed internal auditors disagreed that the systematic rotation of internal auditors could impair their work.

Although Taylor et al. (2003) conjecture that there may be compensating controls that moderate the relationships explored in their external auditor reliability model, with the exception of a few studies that consider the effects of audit committee activities, prior research has not addressed the important compensating controls our interviewees identified. Based on our interviews, we include the following compensating controls in our initial framework as potential moderating variables and test their effects with our archival data: (1) consistency and continuity of IA supervision, (2) audit committee oversight, and (3) management oversight and direction.15

Consistency of IA supervision

Seven of the eleven (64%) CAEs and both audit committee chairmen described the importance of maintaining some consistency in the higher levels of the IAF to reduce the risk of diminished independence or competence resulting from systematic rotation. Most felt it was important to have some career positions within the IAF (i.e., auditors who did not rotate). For example, CAE3’s organization only rotates internal auditors below the senior level:

“One of the reasons that I set the program the way I did, so that senior auditors and above no longer have to rotate, is to try to maintain that continuity within the department...there is that [competency] risk, and one of the risks that I have right now is with such a small department, if I do lose my senior, for example, then that becomes a huge loss of support in that consistency [and] definitely expertise.”

Our interviewees described several ways that maintaining some consistency in the department, especially at the higher levels, helps to reduce objectivity and competence concerns: higher level auditors reviewing others’ work (45%), training and mentoring rotating staff and seniors (45%), and facilitating discussions to ensure there are no objectivity concerns (9%).16 For example, CAE3 described the importance of sufficient supervision to reduce the threats to objectivity:

“[The] biggest way to mitigate that [objectivity] risk is to really make sure that the folks that are not in line of that succession, so a senior or above, [are] deeply enough involved in the audit to where any issue...would require collusion in order to bury it.”

CAE9 also described the importance of mitigating controls such as supervisory review, monitoring, and targeted conversations:

“It’s about conversations with the person, making sure how they think, kind of what they’re looking at, how they’re perceiving different risks that they’re seeing...
out there, and then what actions they’re taking to follow up on them to make sure that they’re digging all the way down to get to the root cause.”

With respect to the consistency and continuity of supervision within the IAF, one of the critical decisions that companies must make is whether to rotate the CAE position specifically. Fifty-five percent of our interviewees described concerns that there are increased risks to IAF objectivity and competence when the CAE role is rotated. Interviewees suggested that by rotating this position the IAF not only loses valuable supervisory skills and internal audit expertise, but the position is often filled by someone with less (or no) internal audit experience. CAE3 described the trend of rotating the CAE position as follows,

“For me, it’s kind of a disturbing trend. I find it problematic, and I know why [management is] doing it. [They want to] increase that ‘audit knows the business’ element...but I don’t think they realize exactly how much of a hole that person is in, starting from zero to try and lead an audit function. There’s such a learning curve, and it’s not something that they’re going to pick up in six months or a year...I think it’s a big disconnect on the part of management as far as understanding how internal audit works.”

With respect to objectivity, some interviewees expressed concerns that the CAE would focus primarily on pleasing executive management. CAE5 described the risk as follows:

“You know, the mindset of a career professional chief audit executive, in my opinion, is different than the mindset of a rotational chief audit executive. My job [as CAE is] to make sure I did a dog-gone good job as the chief auditor and make sure that the audit committee’s rear end was protected. Rotational chief auditors may not have that as their goal and may have the goal of, I want to become the CFO someday or the CEO, so I want to keep the people and executive management happy, and just sort of hope to keep the audit committee happy.”

CAE5 continued to explain how a rotating CAE may face challenges when reporting identified weaknesses to executive management,

“As a career auditor, I just know the challenges that a person has when you’ve got to walk in and tell the CFO or the CEO that something is going wrong in your area and [they’re] not necessarily happy to hear it. And so to me, it’s a lot easier when it’s like this is my job, that’s the way I’m calling it, and I’ve got to tell you this versus, gee, if I just sort of like kind of tell you, and I don’t really tell the audit committee or anybody else, and you’re still happy, we can go fix the problem, and good, and everybody is going to be happy with this, and that problem just goes away and gets fixed...A career auditor will know that I have a fiduciary responsibility to let people know this thing is a problem, needs to be addressed, and yeah, it’s probably going to get fixed, but I’m going to tell the audit committee, because they need to be aware of it.”

CAE3 described a related but different risk to objectivity when the CAE is a rotating position. In particular, he described how it can affect the objectivity of the current IAF staff because they could be uncomfortable auditing a former supervisor:

“When the chief audit executive is rotating as well, I think that’s where you start to really run into some impairments, because then you’ve got a really close tie with...that individual who is now out in the business. And so you take an audit staff, and they actually end up in a position of auditing their former boss.”

Finally, AC2 summarized these concerns when he explained why none of the companies with which he was involved rotated the CAE position:

“[We] just felt that it was better to have stability at the top, because we did feel that we wanted to have, if we could, more rotation underneath. And having stability at the top was a way of providing more continuity and just felt that if the whole thing was turning over, that was going to be just a little more difficult to manage.”

In sum, we expect that maintaining consistency and stability in the IAF can mitigate the risk of impaired IAF objectivity and competence when internal auditors are systematically rotated into management positions. Formally, we hypothesize:

**H2.** Among companies using systematic rotation, limiting it to internal audit staff only (not CAE) increases financial reporting quality.

### Audit committee oversight

Audit committees are responsible for financial reporting quality and for overseeing internal and external audit processes; however, due to a variety of factors (e.g., organizational complexity, internal auditor reporting lines), audit committee effectiveness can vary widely in this regard (Beasley, Carcello, Hermanson, & Neal, 2009). IIA Standards require that the CAE report to the audit committee (or an equivalent) and recommends a dual reporting relationship in which the CAE reports functionally to the audit committee and administratively to senior management (Alkafaji, Hussain, Khallaf, & Majdalawieh, 2010).

Prior literature shows that the audit committee is often involved with hiring and firing the CAE and reviewing or approving the internal audit budget. Further, in many organizations the audit committee meets frequently and privately with the CAE (Anderson, Christ, Johnstone, & Rittenberg, 2011; Beasley et al., 2009). Beasley et al. (2009) interview 42 audit committee members and provide rich descriptions of audit committee activities, including internal audit oversight. Drawing from agency theory (e.g., Jensen & Meckling, 1976) and institutional theory (e.g., Cohen, Krishnamoorthy, & Wright, 2007; Scott, 1987) the authors consider whether audit committees’ practices are more indicative of effective monitoring of management, as predicted by agency theory or primarily serve ceremonial purposes, as predicted by institutional theory.
Prior accounting research suggests that audit committee oversight is an important factor that moderates the proposed negative relation between the use of systematic rotation and financial reporting quality (Abbott, Parker, & Peters, 2007, 2010; Agoglia, Doupnik, & Tsakumis, 2011; Goodwin & Yeo, 2001). For example, Goodwin and Yeo (2001) find some evidence that systematic rotation is clustered in firms with strong audit committees, which they speculate, but do not test, could mitigate potential objectivity concerns. Abbott et al. (2007, 2010) suggest that high quality audit committees may be able to provide sufficient oversight when internal auditor independence is threatened. Rose et al. (2013) find some evidence that audit committees with more power over management’s promotion opportunities are associated with less objective (rotating) internal auditors. Overall, prior research suggests that an effective audit committee may be able to reduce the negative effect on financial reporting quality associated with systematic rotation that we hypothesize in H1.

Interviewees agree with the prior research. In particular, 6 out of 11 interviewees (55%) discussed the importance of audit committee oversight and direction. For example, CAE1, CAE5, and CAE11 (respectively) describe the monitoring role of the audit committee over the IAF:

“We do an annual risk assessment. The audit committee is part of that risk assessment. They approve my audit plan. Every year they approve any changes I make to the audit plan. To the extent there are hot topics, emerging issues, things that are on their mind, they’re certainly going to bring those up, and we’ll incorporate them as appropriate.”

“Well, we certainly spent time with our audit committee to talk to them about, for instance, when we developed our audit plan and presented our audit plan. We went through with them the approach we went and identified for our risk assessment, so that they would understand why there were certain audits that were in the plan.”

“The audit committee is heavily involved, quite frankly, so they see I work for them indirectly, right? They appoint me. They could get rid of me, they do my budget approval each year, my rating, my top, everything associated with the program, they’re involved with.”

CAE2 also describes how his/her audit committee is aware of IA staff rotations:

“I meet quarterly with [the audit committee] and we provide to them on that quarterly basis an update of where we are on the plan, how many hours, for example, I provide them updates real time on staff changes, so if I have someone leaving or moving into the organization, they know about it within a quarter, generally sooner.”

Relatedly, CAE4 indicated that his/her audit committee monitors the success of the rotational program based on a pre-established metric (e.g., rotate two internal auditors into the business per year) in the same manner that they evaluate the IAFs performance relative to other metrics.

Audit committees can improve financial reporting quality in a variety of ways such as asking external auditors to do more work, questioning management to a greater degree (Gendron & Bedard, 2006), shifting internal auditors’ work to focus on financial audits, increasing informal meetings and communication with the IAF (Zaman & Sarens, 2013), or other similar activities. Our interview with AC1 supported this notion:

“[The] compensating control is that as an audit committee member and as the [audit committee] director, we get all the audit reports. We not only get their summary, but we get the entire report that’s written up, so after a while, you get so you can sort of judge quality.”

The interviews and prior research lead to our third hypothesis.

H3. Among companies using systematic rotation, those having relatively strong audit committee oversight have higher financial reporting quality.

Management oversight and direction

Prior literature (e.g., Anderson & Dahle, 2009) and our interviews revealed that different IAFs focus on different types of audit work (e.g., operational audits, financial audits, external audit support, and management’s requests) and that management can significantly affect the type of work performed by and the results reported by the IAF. In particular, 4 of 11 (36%) of our interviewees described management’s involvement and direction in the areas of audit focus and the scoping of particular audits. For example, CAE9 describes how management can direct and assist in audit work:

“They have a lot of input. They provide color around areas. They provide suggestions on areas to be audited. [But] they don’t stop us from auditing areas. We have free access to any information that we need to audit.
an area... they’re real good about, you know, saying hey, I’d really like you to look into this area.”

CAE11 similarly reports management’s expectations play a large role:

“It’s changed over the years, so when I first became the Chief Audit Executive, I reported to our CFO...[then] I got moved to our [chief legal officer]...and then moved to our CEO, so as those transitions have occurred, so has really my drive and push to do different things. So of course when this was a CFO function with my predecessor, the group talked about finance stuff...”

The interviews suggest that management’s interests affect the work performed by the IAF—especially if the IAF uses a rotational staffing model. Thus, if management expects internal audit to focus on financial reporting quality, this will operate as a compensating control in that the internal auditors will be more likely to do so, which we expect will help ensure higher financial reporting quality. This leads to our final hypothesis:

H4. Among companies using systematic rotation, those that more heavily focus internal auditors on financial matters have higher financial reporting quality.

Archival data and model specification

Sample and data

We use several datasets to test our hypotheses. We obtain data about IAFs from the GAIN database, gathered by the IIA. We use data from the Compustat, CRSP, Audit Analytics, and RiskMetrics databases to obtain the remaining variables. Similar to Messier et al. (2011), we lose 148 firm-years because of inconclusive data concerning the use of systematic rotation.19 Our data requirements result in 353 firm-year observations, which correspond to 157 companies in 38 different two-digit SIC code industries from the years 2000 to 2005.

The IIA GAIN database compiles survey responses from chief audit executives associated with IIA member organizations, and thus includes a wide range of institutions (e.g., publicly-traded companies, private companies, educational institutions, subsidiaries and divisions within companies, and governmental institutions). The survey covers various aspects of internal audit practice and provides benchmarking data for participating companies. The survey changes slightly from year to year, but none of the questions included in this study changed over our time period.20

The IIA does not reveal participating companies’ identities. Thus, we match several self-reported fields in the

19 The IIA survey asks respondents if they systematically rotate staff and the CAE position and gives them four options from which to choose. These options include using staff and CAE positions as rotational, career, rotational moving to career, and career moving to rotational. Consistent with Messier et al. (2011), because it is not possible to discern the degree of “movement” for the latter two categories, we exclude these firm-years from our study.

20 After 2005, the IIA no longer included the question on systematic rotation as a staffing model.

sample with data items in Compustat to include appropriate control variables in our study. Specifically, following Prawitt et al. (2009), we match on self-reported total assets, total revenues, and operating industry to identify companies. We include all companies for which we can match identically all three metrics in a particular year and then use the unique identifier in the IIA data to identify subsequent or previous firm year responses.21

We measure financial reporting quality using Accounting Risk, a proprietary measure developed by Audit Integrity. Audit Integrity uses publicly available financial data to estimate the likelihood that reported financial information includes elements that are intentionally misleading or fraudulent (Audit Integrity, 2005). Accounting Risk is the output of a proprietary model that evaluates public companies’ financial reports and independently assesses the risk of misreporting by identifying suspicious patterns in accounting. Thus, Accounting Risk is an ex ante estimate of the risk that companies are engaging in inappropriate or aggressive financial reporting.22 23 The Accounting Risk measure, scaled from 0 to 100, is decreasing in risk (a value of 100 suggests very low risk). For ease of interpretation and to be consistent with prior research (Price et al., 2011), we invert the scale so it is increasing in risk (a value of 100 suggests very high risk). A positive relation between systematic rotation and Accounting Risk (H1) suggests that systematically rotating internal auditors into management positions is associated with lower financial reporting quality.

Price et al. (2011) provide evidence supporting the construct validity of the Accounting Risk measure. Specifically, they find that the measure is as good as or superior to a variety of academic risk measures for predicting SEC enforcement actions, irregular restatements (Hennes, Leone, & Miller, 2008), and lawsuits related to accounting malfeasance.

Addressing selection bias

Because organizations choose whether to use systematic rotation, selection bias is a concern in our study. Researchers have identified several econometric techniques for mitigating the effects of selection bias (see summaries in Francis, Lennox, & Wang, 2010; Larcker & Rusticus, 2010; and Tucker, 2010). We use a Heckman self-selection model for several reasons: (1) selection bias due to unobservable omitted variables is the chief concern in our setting; (2) firms’ choice to use rotational staffing models is binary; (3) we identify an exogenous, independent variable in the

21 Prawitt et al. (2009) report that this matching procedure correctly identifies firms in the IIA’s database.

22 Data relating to companies’ IAFs are not directly used in the calculation of Audit Integrity’s risk measure. Ideally we would also examine ex post measures of accounting risk (e.g., SEC enforcement actions, restatements, etc.). However, similar to Prawitt et al. (2012), there is minimal intersection of these type events with our data; therefore, we are unable to perform an ex post analysis.

23 Accounting Risk is calculated based on the following inputs: (1) expense recognition, (2) revenue recognition, (3) high risk events, and (4) asset and liability valuation. Audit Integrity measures each component using the following metrics: (i) the percentage change from the prior year, (ii) number of standard deviations from the industry average, and (iii) volatility over two years (Price et al., 2011).
first stage model that we appropriately exclude from the independent variables in the second stage model; and (4) from a practical perspective, the relatively small sample of companies with IAF data makes it difficult to identify good matches using propensity score matching.

The first-stage model we employ is as follows:

\[
\text{Rotate} = \beta_0 + \beta_1 \text{MeanIndRotate} + \beta_2 \text{IACompetence} \\
+ \beta_3 \text{Outsource} + \beta_4 \text{AuditCommittee} \\
+ \beta_5 \text{AuditSpecialist} + \beta_6 \text{AuditFee} + \beta_7 \text{Gindex} \\
+ \beta_8 \text{Assets} + \beta_9 \text{Leverage} + \beta_{10} \text{Complexity} \\
+ \beta_{11} \text{MB} + \beta_{12} \text{Age} + \beta_{13} \text{NYSE} \\
+ \beta_{14-19} \text{IndustryDummies} \\
+ \beta_{20-24} \text{YearDummies} + \varepsilon
\]  

(1)

(See Appendix B for variable definitions.)

In Eq. (1), the dependent variable is the dichotomous choice variable, Rotate, which equals 1 if the firm uses systematic rotation and 0 otherwise. The Heckman selection model requires us to identify an exogenous independent variable in the first stage model that we can appropriately exclude from the second stage model (Francis et al., 2010). We include MeanIndRotate, which represents the industry average use of rotational staffing models (excluding the company itself). Companies commonly benchmark their IAF practices based on industry peers; thus, if industry peers systematically rotate internal auditors into management positions, we posit that a company will be more likely to do so as well. Thus, we expect a positive coefficient on MeanIndRotate. It is appropriate to exclude MeanIndRotate from the second stage models explaining Accounting Risk because there is no reason to expect that the industry benchmark for using a rotational staffing model will affect an individual company’s accounting risk.

Our prediction model also includes a number of additional variables. First, we control for two other internal audit characteristics that might be associated with the choice to use systematic rotation by including IACompetence and Outsource. We include IACompetence because Messier et al. (2011) provide univariate evidence that systematic rotation is negatively associated with internal audit quality. We also include a dichotomous measure to capture whether companies outsource work of the IAF to a third party (Outsource) because it is unclear whether firms that use systematic rotation are likely to outsource IA positions. Outsource is equal to 1 if a company outsources any or all of its IAF to a third party, and 0 otherwise.24 To control for the effect of various corporate governance mechanisms, we include the effectiveness of the audit committee (AuditCommittee), two measures of external auditor quality (AuditSpecialist and AuditFee), and management’s power over the board of directors (Gindex) (Gompers, Ishii, & Metrick, 2003). We expect higher quality corporate governance will be negatively associated with the systematic rotation.

We control for size (Assets), leverage (Leverage), complexity (Complexity), market-to-book (MB), age (Age), and an indicator for companies listed on the New York Stock Exchange (NYSE), as each of these firm characteristics could affect the decision to use systematic rotation (Messier et al., 2011). We also include six industry dummy variables representing one-digit SIC code industries. We control for year effects by including indicator variables for each fiscal year.

Accounting risk model specification

After estimating the model in Eq. (1), we compute the inverse Mills’ ratio (\(\Lambda\)) and include it in the model we use to test Hypothesis 1:

\[
\text{AR} = \beta_0 + \beta_1 \text{Rotate} + \beta_2 \text{CAEAC} + + \beta_3 \text{IACompetence} \\
+ \beta_4 \text{QAR} + \beta_5 \text{Turnover} + \beta_6 \text{Outsource} \\
+ \beta_7 \text{AuditCommittee} + \beta_8 \text{MeetOften} \\
+ \beta_9 \text{AuditSpecialist} + \beta_{10} \text{AuditFee} + \beta_{11} \text{Gindex} \\
+ \beta_{12} \text{Assets} + \beta_{13} \text{Leverage} + \beta_{14} \text{Complexity} \\
+ \beta_{15} \text{Loss} + \beta_{16} \text{Return} + \beta_{17} \text{CFO} \\
+ \beta_{18} \text{SalesGrowth} + \beta_{19} \text{MB} + \beta_{20} \text{Age} \\
+ \beta_{21} \text{FinRaised} + \beta_{22} \text{FinNeed} + \beta_{23} \text{NYSE} \\
+ \beta_{24} \text{Lambda} + \beta_{25-30} \text{IndustryDummies} \\
+ \beta_{31-35} \text{YearDummies} + \varepsilon
\]  

(2)

(See Appendix B for variable descriptions.)

AR is the accounting risk measure described previously. Rotate is a dichotomous variable measuring whether a company uses systematic rotation. A positive coefficient on this variable would indicate that, consistent with Hypothesis 1, companies that use systematic rotation have higher accounting risk than companies that do not.

Audit committees are monitors of the financial reporting process. Therefore, we control for the CAE reporting to the audit committee (CAEAC), effectiveness of the audit committee (AuditCommittee), and audit committee diligence (MeetOften). We expect a negative coefficient for CAEAC, AuditCommittee, and MeetOften. To control for the expertise of the IAF, we include IACompetence and QAR which measure things such as certifications, experience, and training (see Appendix B for full discussion) and whether the IAF has had a recent quality annual review. We also control for turnover within the IAF (Turnover) as turnover may decrease the monitoring ability of the IAF, thus increasing accounting risk. Furthermore, IAFs that use systematic rotation are likely to have higher turnover (Messier et al., 2011), and we want to evaluate whether systematic rotation is what is associated with accounting risk while holding constant the effects of turnover. Prawitt et al. (2012) also demonstrate that outsourcing work of the IAF can affect
accounting risk, thus we include a measure of outsourcing in our model (\textit{Outsource}).

In addition, we expect a negative association between accounting risk and external auditor quality (\textit{AuditSpecialist}), but a positive association between accounting risk and external audit fees (\textit{AuditFee}) (Charles, Glover, & Sharp, 2010). For \textit{Gindex}, we expect a positive relation with accounting risk as higher values of \textit{Gindex} suggest greater management power and thus weaker corporate governance.

The other control variables are relatively standard in the literature, so we omit their detailed descriptions (for detailed discussion see Beneish, 1997; Dechow, Sloan, & Sweeney, 1996; Jones, Krishnan, & Melendrez, 2008; Matsumoto, 2002; Menon & Williams, 2004; Prawitt et al., 2012; Richardson, Tuna, & Wu, 2002; Romanus, Maher, & Fleming, 2008). \textit{Lambda} is the inverse Mills’ ratio computed from Eq. (1), which we include in order to control for the effects of self-selection bias due to unobservable factors. As a reminder, Mean\textit{IndRotate}, is the independent variable from Eq. (1) that we exclude from Eq. (2).\textsuperscript{25} We do not tabulate coefficient estimates for the industry and year indicators as we have no \textit{ex ante} prediction about whether the risk of fraudulent or inappropriate accounting transactions differs by industry or over time. Finally, we cluster standard errors by company.\textsuperscript{26}

\textbf{Testing effects of compensating controls}

To test Hypothesis 2, we rerun Eq. (2) splitting \textit{Rotate} into three variables: \textit{RotateCAE} is a dichotomous variable indicating whether the chief audit executive position is systematically rotated, \textit{RotateEmp} is a dichotomous variable indicating whether only staff positions are systematically rotated, and \textit{RotateBoth} is a dichotomous variable indicating whether both staff positions and the CAE position are systematically rotated. \textit{H2} posits that the coefficient on \textit{RotateCAE} will be greater than the coefficient on \textit{RotateEmp}, which we test using an \textit{f}-test.

To test \textit{H3} and \textit{H4} we estimate the following cross-sectional regression model:

\[
AR = \beta_0 + \beta_1 \text{Rotate} + \beta_2 \text{MGMTFocus} + \beta_3 \text{Rotate} + \beta_4 \text{MGMTFocus} \\
+ \beta_5 \text{Rotate} + \beta_6 \text{CAEC} + \beta_7 \text{Rotate} + \beta_8 \text{AuditCommittee} + \beta_9 \text{Rotate} \\
+ \beta_{10} \text{IACompetence} + \beta_{11} \text{QAR} + \beta_{12} \text{Tunower} + \beta_{13} \text{Outsource} \\
+ \beta_{14} \text{AuditSpecialist} + \beta_{15} \text{AuditFee} + \beta_{16} \text{Gindex} + \beta_{17} \text{Asset} \\
+ \beta_{18} \text{Leverage} + \beta_{19} \text{Complexity} + \beta_{20} \text{Loss} + \beta_{21} \text{Return} \\
+ \beta_{22} \text{CFO} + \beta_{23} \text{SalesGrowth} + \beta_{24} \text{MB} + \beta_{25} \text{Age} + \beta_{26} \text{FinRaised} \\
+ \beta_{27} \text{FinNeed} + \beta_{28} \text{NYSE} + \beta_{29} \text{Lamba} + \beta_{30-35} \text{YearDummies} \\
+ \beta_{36-40} \text{YearDummies} + \epsilon \\
\text{(3)}
\]

(See Appendix B for variable descriptions.)

Eq. (3) includes one new variable and several interaction terms. The new variable, \textit{MGMTFocus}, is a dichotomous variable taking the value of one if management

\textsuperscript{25} Our inferences are robust if we include any or all of the additional control variables from Eq. (2) in Eq. (1) (e.g., return, loss, etc.).

\textsuperscript{26} An alternative to including year fixed effects is to cluster our standard errors by both firm and year. However, given the small number of years in our sample period, year fixed effects are preferable (Peterson, 2009).

expects internal audit to focus on both risk assessments and internal consulting on financial matters (versus a focus on compliance (laws and regulations) or internal consulting on operational matters).

To test \textit{H3}, we interact \textit{Rotate} with three separate measures capturing audit committee oversight. These three audit committee variables capture both audit committee effectiveness characteristics (\textit{AuditCommittee}) and activities (\textit{CAEC} and \textit{MeetOften}). We expect firms with strong audit committee oversight to have effective audit committee characteristics, to direct the CAE to report to the audit committee, and to meet more often with the CAE. A negative coefficient on the interaction terms \textit{Rotate} * \textit{CAEC}; \textit{Rotate} * \textit{AuditCommittee}; and \textit{Rotate} * \textit{MeetOften} would support \textit{H3}. The relationship between the IAF and the audit committee is likely multi-faceted, so we cannot \textit{ex ante} predict which variable is the most important factor impacting the relation or whether all should be significant.

To test \textit{H4}, we interact \textit{MGMTFocus} and \textit{Rotate}. A negative coefficient on this interaction would suggest that, consistent with \textit{H4}, management’s expectations that internal auditors focus on financial work improves financial reporting quality for firms that use systematic rotation.

\textbf{Results}

\textbf{Descriptive statistics and univariate comparisons}

Table 3, Panel A presents descriptive statistics. For brevity, we highlight select variables here. Overall, 82% of sample firm-years report using systematic rotation. Companies that use this practice are most likely to systematically rotate staff positions (\textit{RotateEmp} = 0.42). In addition, the sample consists of large companies that are not highly leveraged or overly complex. Finally, our sample firms appear to have reasonably competent IAFs as the \textit{IACompetence} exhibits only a one point difference between the 25th and 75th percentiles. In Table 3, Panel B we provide a correlation matrix.

Table 4 presents the results of the first stage model that explains the choice to systematically rotate internal auditors. As expected, the use of systematic rotation by a company’s industry peers is positively related to a company’s decision to use systematic rotation (i.e., Mean\textit{IndRotate} is positive and \textit{p}-value < 0.01). In addition, the more competent the IAF, the less likely it will be to use systematic rotation (\textit{p}-value < 0.01). Outsourcing some of the IAF is positively associated with systematic rotation (\textit{p}-values < 0.05).\textsuperscript{27} Consistent with Messier et al. (2011),

\textsuperscript{27} We provide two possible explanations for the positive relation between outsourcing and systematic rotation. First, a company that uses systematic rotation may choose to use internal auditors in tasks that develop their management skills, while purchasing outsourced services in areas that are not as important for management. Second, the head of internal audit, perhaps in conjunction with the audit committee, is aware that IAFs that use systematic rotation might be missing some internal audit skill sets; thus, they may purchase specialized skill sets using outsourcing arrangements. Regardless, our statistical analyses control for these possibilities; thus, our results are not confounded by the association between outsourcing and the use of systematic rotation. We encourage future research to examine this issue more closely.
### Table 3
Descriptive statistics and correlation matrix.

| Variable          | Mean | Std. dev. | 25th Pctl | Median | 75th Pctl | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  |
|-------------------|------|-----------|-----------|---------|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| **Panel A: Descriptive statistics**
| Rotate            | 0.82 | 0.38      | 1         | 1       | 1        | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| RotateCAE         | 0.12 | 0.32      | 0         | 0       | 0        | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| RotateEmp         | 0.42 | 0.49      | 0         | 0       | 1        | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| RotateBoth        | 0.28 | 0.45      | 0         | 0       | 1        | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| CAEAC             | 0.69 | 0.46      | 0         | 1       | 1        | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| IACompetence      | 2.56 | 1.19      | 2         | 3       | 3        |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| QAR               | 0.2  | 0.4       | 0         | 0       | 0        | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| Turnover          | 0.26 | 0.19      | 0.14      | 0.23    | 0.33     | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| Outsource         | 0.69 | 0.46      | 0         | 1       | 1        | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| AuditCommittee    | 0.88 | 0.33      | 1         | 1       | 1        | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| MeetOften         | 0.69 | 0.46      | 0         | 0       | 1        | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| AuditSpecialist   | 0.55 | 0.5       | 0         | 1       | 1        | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| AuditFee          | 14.78| 2.21      | 14.02     | 14.81   | 15.58    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Gindex            | 9.79 | 2.16      | 8         | 10      | 11       | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| Assets            | 9.15 | 1.36      | 8.15      | 9.24    | 10.2     | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| Leverage          | 0.47 | 0.13      | 0.4       | 0.47    | 0.55     | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| Complexity        | 3.68 | 2.19      | 1         | 4       | 5        | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| Loss              | 0.14 | 0.35      | 0         | 0       | 0        | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| Return            | 0.1  | 0.42      | -0.14     | 0.06    | 0.24     | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| CFO               | 0.1  | 0.06      | 0.06      | 0.09    | 0.14     | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| SalesGrowth       | 0.05 | 0.18      | -0.02     | 0.05    | 0.14     | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| MB                | 2.94 | 11.77     | 1.48      | 2.14    | 3.58     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Age               | 44.4 | 13.5      | 52        | 54      | 54       | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| FinRaised         | 0.33 | 0.4       | 0.16      | 0.3     | 0.42     | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| FinNeed           | 0.01 | 0.07      | 0         | 0       | 0        | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |
| NYSE              | 0.92 | 0.27      | 1         | 1       | 1        | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   | *   |

In Panel B, correlations are presented between internal audit and governance characteristics. All other correlations included in models are below 0.30 (except Assets and AuditFee are correlated at 0.73). Cells are bolded (italicized) if the two-tailed p-value < 0.05 (0.10). See Appendix B for variable descriptions.
companies that use systematic rotation have higher external audit fees (p-value < 0.05). From this model, we compute the inverse Mills’ ratio and use it to control for selection bias in the remaining models.  

**Hypothesis testing**

**H1** predicts that companies that use systematic rotation will have lower financial reporting quality, which we operationalize as higher accounting risk. The results, presented in Table 5, Panel A show that the coefficient estimate for \( \text{Rotate} \) is positive and statistically significant (p-value < 0.01). This result supports **H1** and suggests that companies that systematically rotate their internal auditors have greater accounting risk (i.e., lower financial reporting quality) than companies that do not use systematic rotation. Of our two IAF expertise measures, we find that IACompetence is negative and statistically significant (p-value < 0.05) while IACompetence is not significant (p-value > 0.10). Of the other control variables, Turnover, Outsource, AuditSpecialist, Assets, Complexity, Loss, and Return are statistically significant, all in the direction predicted (p-values < 0.10). Our inferences about the association between systematic rotation and accounting risk are unlikely to be affected by selection bias due to unobserved company characteristics because the model includes the inverse mills ratio, \( \Lambda \), from the Rotation prediction model.

Panel B of Table 5 shows the results of tests of **H2** which examine whether companies that systematically rotate the chief audit executive position have higher accounting risk than companies that only rotate staff internal audit positions (**H2**). The test of \( \text{RotateCAE} \) = RotateEmp shows that the coefficient on RotateCAE is higher than the coefficient on RotateEmp (p-value < 0.05), supporting **H2**. We also find that systematically rotating both the chief audit executive position and staff positions is associated with higher accounting risk than using just staff positions (p-value < 0.05). Thus, as our interview data suggest, systematically rotating the head of internal audit position is particularly troublesome in its effects on financial reporting quality. We also note that all three of the Rotate variables are positive and statistically significant (p-values < 0.01); thus, using only rotating staff positions is not a cure-all—it is still associated with higher accounting risk.

In Table 6, we present our tests of **H3** and **H4**. **H3** posits that a strong audit committee mitigates the negative financial reporting effects of using systematic rotation. The negative coefficient on Rotate + AuditCommittee indicates that a more effective audit committee is associated with a reduction in the incremental accounting risk from using systematic rotation (p-value < 0.05). Having the head of internal audit report to the audit committee and having more frequent meetings are directionally consistent but not statistically significant at traditional levels (p-values = 0.109 and 0.120, respectively). However, having a strong audit committee is not sufficient to completely mitigate the negative effect of using systematic rotation because the sum of Rotate + Rotate + CAEAC + Rotate + AuditCommittee + Rotate + MeetOften = 0 is still positive (p-value < 0.01).

**H4**, we posit that if management asks internal auditors to place greater focus on improving financial reporting, systematic rotation will be more likely to reduce financial reporting risk. The results of our test support this hypothesis in that the Rotate + MGMTFocus interaction is negative and moderately significant (p-value < 0.10). Again, management’s expectation that the IAF focus on financial reporting is not sufficient to completely mitigate the negative effect of using systematic rotation, because Rotate + Rotate + MGMTFocus = 0 is still positive (p-value < 0.01).

We examine whether the combination of a strong audit committee and management focus on having internal audit improve financial reporting completely mitigates the negative effect of using systematic rotation by testing whether the sum of Rotate + Rotate + MGMTFocus + Rotate + CAEAC + Rotate + AuditCommittee + Rotate + MeetOften = 0. This sum is not statistically different from zero (p-value > 0.10) suggesting that the combination of both a strong audit committee and management focus on financial reporting eliminates the negative financial reporting effects of using systematic rotation.

---

28 Audit committee effectiveness is not significant in explaining the choice to use systematic rotation. This result is somewhat surprising given prior research showing that the audit committee appears to distinguish between outsourcing arrangements that are more or less likely to produce economic bonding (Abbott et al., 2007). However, our result is based on a relatively small sample, and the audit committee does not always decide whether to systematically rotate internal auditors (this decision can also be made by the CEO, the CFO, or the CAE). Several of our interviewees indicated that the decision to use a rotational staffing model for the IAF was made by other individuals or groups within the organization. For example, in some companies the decision is made by executive management (e.g., CFO), and often, it is driven by the CAE him/herself.

---

### Table 4

**Modeling the choice to use systematic rotation.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypothesized sign</th>
<th>( \beta )</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>−/+</td>
<td>−12.68</td>
<td>14.86 ***</td>
</tr>
<tr>
<td>MeanIndRotate</td>
<td>+</td>
<td>8.54</td>
<td>9.10 **</td>
</tr>
<tr>
<td>IACompetence</td>
<td>−</td>
<td>−0.35</td>
<td>11.66 ***</td>
</tr>
<tr>
<td>Outsource</td>
<td>−/+</td>
<td>0.47</td>
<td>4.55 **</td>
</tr>
<tr>
<td>AuditCommittee</td>
<td>−</td>
<td>0.22</td>
<td>0.49</td>
</tr>
<tr>
<td>AuditSpecialist</td>
<td>−</td>
<td>0.19</td>
<td>0.68</td>
</tr>
<tr>
<td>AuditFee</td>
<td>+</td>
<td>0.37</td>
<td>3.31 **</td>
</tr>
<tr>
<td>Gindex</td>
<td>+</td>
<td>−0.06</td>
<td>1.38</td>
</tr>
<tr>
<td>Assets</td>
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<td>0.20</td>
<td>1.56</td>
</tr>
<tr>
<td>Leverage</td>
<td>−/+</td>
<td>0.20</td>
<td>0.04</td>
</tr>
<tr>
<td>Complexity</td>
<td>−/+</td>
<td>−0.05</td>
<td>0.73</td>
</tr>
<tr>
<td>MB</td>
<td>−/+</td>
<td>0.01</td>
<td>0.67</td>
</tr>
<tr>
<td>Age</td>
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<td>0.0004</td>
<td>0.00</td>
</tr>
<tr>
<td>NYSE</td>
<td>−/+</td>
<td>−0.42</td>
<td>0.50</td>
</tr>
<tr>
<td>( N )</td>
<td></td>
<td>353</td>
<td></td>
</tr>
<tr>
<td>Psuedo-( R^2 )</td>
<td></td>
<td>0.300</td>
<td></td>
</tr>
</tbody>
</table>

This table shows the results of a logistic regression. P-values represent one-tailed tests when a specific direction is predicted and the sign of the coefficient is consistent with that prediction. Industry and Year variables are repressed for presentational ease. See Appendix B for variable descriptions.

- *** Statistical significance at the p < 0.10 level.
- ** Statistical significance at the p < 0.05 level.
- * Statistical significance at the p < 0.01 level.
Taken together, the results suggest that systematically rotating internal auditors into management positions can impair the IAF’s effectiveness in monitoring the financial reporting process. One such negative consequence of using systematic rotation is increased accounting risk as compared to companies that do not use systematic rotation. This means companies that use systematic rotation have an increased likelihood of intentional misstatement and/or fraud in their financial statements. However, a strong audit committee and management’s directive to the IAF to focus on financial reporting issues can serve as compensating controls that can mitigate the extent to which systematic rotation increases accounting risk.

Robustness tests

As two alternative tests of H1, we repeat the same analysis in Table 4, Panel A, using alternative dependent variables. Instead of Accounting Risk, we use Dechow, Ge, Larson, and Sloan’s (2011) fraud risk score (F-score) and an abnormal accruals measure based on Dechow, Sloan, and Sweeney (1995). F-score was designed to identify the same types of egregious accounting irregularities as Audit Integrity’s Accounting Risk measure. Consistent with our results, for both alternative dependent variables, we observe a positive and significant coefficient (p-value < 0.05) on Rotate. Thus, our results for H1 are robust using alternative measures of the risk of financial misreporting.

We also retest H2 using the alternative dependent variables. Rotate CAE, Rotate Both, and Rotate Emp remain positively associated with accounting risk (p-values < 0.05), but the differences between variables are no longer statistically significant. We also repeat our tests of H3 and H4, using the alternative dependent variables. H3 is supported when we use the F-score (p-value < 0.05) but is not statistically significant when we use the abnormal accrual measure (p-value = 0.145). Similarly, the results for H4 hold with the F-score measure (p-value < 0.05), but not with the abnormal accrual measure. Overall, the results are reasonably robust to using noisier proxies for financial reporting quality (Price et al., 2011).

A potential alternative explanation for H1 is that our accounting risk measure is simply picking up the external

Table 5
Multivariate tests of the effects of using systematic rotation on accounting risk.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypothesized sign</th>
<th>Panel A</th>
<th>Panel B</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>$z$-value</td>
<td>$\beta$</td>
</tr>
<tr>
<td>Intercept</td>
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<td>5.00***</td>
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<tr>
<td>Rotate</td>
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<td>4.03**</td>
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<tr>
<td>RotateCAE</td>
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<td>–</td>
<td>–</td>
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<tr>
<td>RotateBoth</td>
<td>+</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>RotateEmp</td>
<td>+</td>
<td>–</td>
<td>–</td>
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<td>CAEAC</td>
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<tr>
<td>IACompetence</td>
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<tr>
<td>QAR</td>
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<td>–0.131</td>
<td>–2.12**</td>
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<tr>
<td>Turnover</td>
<td>+</td>
<td>0.263</td>
<td>1.85**</td>
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<tr>
<td>Outsource</td>
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<td>AuditCommittee</td>
<td>–</td>
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<td>–0.63</td>
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<tr>
<td>MeetOften</td>
<td>–</td>
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</tr>
<tr>
<td>AuditSpecialist</td>
<td>–</td>
<td>–0.138</td>
<td>–2.07**</td>
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<tr>
<td>AuditFee</td>
<td>–</td>
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<tr>
<td>Gindex</td>
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<tr>
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<tr>
<td>Loss</td>
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<td>Return</td>
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<tr>
<td>SalesGrowth</td>
<td>+</td>
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<tr>
<td>FinNeed</td>
<td>+</td>
<td>0.022</td>
<td>0.08</td>
</tr>
<tr>
<td>NYSE</td>
<td>–/+</td>
<td>–0.159</td>
<td>–1.07</td>
</tr>
</tbody>
</table>
| Lambda           | –/+               | –0.235  | –1.85** | –0.243  | –1.86***

Test of RotateCAE = RotateEmp
Test of RotateCAE = RotateBoth
Test of RotateEmp = RotateBoth

$F$-value

| $N$   | 353 |
| Adj. $R^2$ | 0.143 | 0.149 |

$P$-values represent one-tailed tests when a specific direction is predicted and the sign of the coefficient is consistent with that prediction. Standard errors are clustered by company. See Appendix B for variable descriptions.

* Statistical significance at the $p < 0.10$ level.

** Statistical significance at the $p < 0.05$ level.

*** Statistical significance at the $p < 0.01$ level.
In this paper, we examine whether the practice of systematically rotating internal auditors into management positions (i.e., systematic rotation) is associated with lower financial reporting quality. We also investigate compensating controls, which we derive from interviewing practicing heads of internal audit and audit committee members, which can strengthen the IAF’s capacity and willingness to detect and prevent low quality financial reporting and thereby mitigate this negative relation. Consistent with our causal predictions, we find that systematic rotation is associated with lower financial reporting quality, indicating that companies that employ this practice may be more susceptible to misleading or fraudulent financial reporting than companies that do not use this practice. We also find that several key compensating controls that provide oversight to the IAF do moderate this negative effect. That is, the negative relationship between using systematic rotation and financial reporting quality is reduced if the following compensating controls, are used: (1) only staff internal audit positions (not CAE) are rotated, (2) there is a more effective audit committee, or (3) management asks internal audit to have a greater role in the financial reporting process. Further, using the compensating controls together eliminates the negative association between systematic rotation and impaired financial reporting quality.

These results inform practitioners and scholars about whether and how the IAF impacts organizations. The IIA’s definition of internal auditing states that internal auditors should be independent and “add value by improving an organization’s operations, risk management, control, and governance processes” (2011a). Our results suggest that systematic rotation, without the implementation of appropriate compensating controls, may impair the IAF’s ability to monitor financial reporting quality. Internal audit standard setters and practitioners, as well as others interested in corporate governance, should find these results useful in helping to improve the IAF’s ability to fulfill its charge.

Our results contribute to the existing literature on systematic rotation (i.e., research on using the IAF as a MTG) in several important ways. First, ours is the first study to investigate the effect of this practice on financial reporting quality. While prior research has examined its effects on objectivity (Rose et al., 2013) and perceived objectivity (Messier et al., 2011), we use archival data to test and find that these effects extend beyond the internal auditor to the impairment of financial reporting quality. Second, we advance the literature by examining several key compensating controls that can improve the IAF’s willingness and capacity to prevent and/or detect low quality financial reporting. When organizations implement these control practices, which provide various forms of oversight to the IAF, the negative effect of systematic rotation diminishes. When the controls are used together, the negative effect can be eliminated. Third, our interview data provides insights into the practice of systematic rotation including its benefits and challenges. Prior research has not considered the benefits of systematic rotation and further exploration is warranted to better understand how it helps the IAF add value to the organization.

Table 6
Multivariate tests of factors that moderate the effects of systematic rotation on accounting risk.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Hypothesized sign</th>
<th>β</th>
<th>z-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>−/+</td>
<td>2.757</td>
<td>4.14***</td>
</tr>
<tr>
<td>ROTATE</td>
<td>+</td>
<td>1.710</td>
<td>4.72***</td>
</tr>
<tr>
<td>MGMTFocus</td>
<td>−</td>
<td>0.272</td>
<td>0.96</td>
</tr>
<tr>
<td>ROTATE + MGMTFocus</td>
<td>−</td>
<td>−0.414</td>
<td>−1.43</td>
</tr>
<tr>
<td>ROTATE + CAEAC</td>
<td>−</td>
<td>−0.252</td>
<td>−1.23</td>
</tr>
<tr>
<td>ROTATE + AuditCommittee</td>
<td>−</td>
<td>−0.423</td>
<td>−1.73**</td>
</tr>
<tr>
<td>ROTATE + MeetOften</td>
<td>−</td>
<td>−0.317</td>
<td>−1.17</td>
</tr>
<tr>
<td>CAEAC</td>
<td>−</td>
<td>0.152</td>
<td>0.76</td>
</tr>
<tr>
<td>IACompetence</td>
<td>−</td>
<td>0.031</td>
<td>1.06</td>
</tr>
<tr>
<td>QAR</td>
<td>−</td>
<td>−0.161</td>
<td>−2.71***</td>
</tr>
<tr>
<td>Turnover</td>
<td>+</td>
<td>0.268</td>
<td>1.73**</td>
</tr>
<tr>
<td>Outsource</td>
<td>−</td>
<td>−0.152</td>
<td>−2.26**</td>
</tr>
<tr>
<td>AuditCommittee</td>
<td>−</td>
<td>0.289</td>
<td>1.25</td>
</tr>
<tr>
<td>MeetOften</td>
<td>−</td>
<td>0.379</td>
<td>1.44</td>
</tr>
</tbody>
</table>

Test of ROTATE + ROTATE + MGMTFocus + ROTATE + CAEAC + ROTATE + AuditCommittee + ROTATE + MeetOften = 0

F = 2.29

N = 353

Adj. R² = 0.179

*p-values represent one-tailed tests when a specific direction is predicted and the sign of the coefficient is consistent with that prediction. Standard errors are clustered by company. See Appendix B for variable descriptions. We note that the same control variables were included as in Table 4, we omit them in this table for presentational ease.

* Statistical significance at the p ≤ 0.10 level.
** Statistical significance at the p ≤ 0.05 level.
*** Statistical significance at the p ≤ 0.01 level.
The results of this study are subject to several limitations that suggest avenues for future research. First, archival research is limited in its ability to test causal relations. The model we develop from interviewing practitioners suggests factors that can affect the objectivity and competence of internal auditors. Researchers using experimental, survey, case study, interview, and other methods may be able to shed additional light on this model and our findings. For example, experiments can be used to more directly test whether objectivity and competence mediate the relation we observe between systematic rotation and financial reporting quality. Using complementary research methods can triangulate research findings and improve our understanding of how the IAF affects financial reporting quality.

Second, we include in our initial model and test three key compensating controls identified by the CAEs we interviewed. However, the CAEs also mentioned other important compensating controls that we were not able to test due to data limitations (e.g., hiring practices, supervisory review practices). Future research should explore whether and how these other controls may mitigate the risks of rotating internal auditors into operational management positions. For example, experimental methods may be useful to determine whether different methods of workpaper review can mitigate the risk of impaired independence/objectivity.

Third, due to data availability constraints, our analysis is limited to data collected between 2000 and 2005. Although this was a tumultuous time for publicly traded corporations, there is no reason to believe the events of this time period would be correlated with the use of the systematic rotation. In particular, the changes that occurred during this period (e.g., the implementation of SOX) would likely have affected companies that do and do not rotate internal auditors in similar ways. We believe examining practices associated with internal auditing and how companies can improve their IAFs to ensure high quality corporate governance is an important area for future research.

Overall, this paper makes an important contribution to research and practice by demonstrating that although systematic rotation of internal auditors into management positions is negatively associated with financial reporting quality, the negative effects can be mitigated with appropriate compensating controls. Most of the prior literature has identified risks to internal auditors’ objectivity and independence resulting from systematic rotation, but has not considered whether control conscious organizations can implement the appropriate policies, procedures, and oversight to effectively mitigate these risks. Additionally, this paper demonstrates to researchers that combining interview and archival data sources can produce interesting insights into important accounting matters that would not be attainable using only archival data.

Appendix A

Semi-structured interview protocol

We used the following interview protocol to guide our interviews.

1. Descriptive information:
   a. Organization Size, industry
   b. IAF Size
   c. Staffing
      i. # of staff, managers, etc.
      ii. Cosource? Outsource, etc.
   d. IA plan or budget size
   e. Types of audits conducted
   f. Reporting lines

2. Systematic rotation of internal auditors into management:
   a. Do you use systematic rotation? (why or why not?)
   b. Who makes the decision to use systematic rotation?
   c. Do auditors start in IA and rotate into the company or can they come into IA after holding an operational position?
   d. Which employees rotate out (All? Some? Staff only – i.e., not CAE)?
   e. Who decides who gets hired out of internal audit?
   f. What is the time frame for rotation?
   g. Is there a special skill set needed for rotation?
   h. Do rotating internal auditors do different work than other (career) internal auditors? (e.g., do they only focus on consulting?)

3. Benefits & costs (risks) of systematic rotation:
   a. What are the benefits of systematic rotation?
      i. For the IA department/organization/rotating auditor?
   b. What are the risks of systematic rotation?
      i. For the IA department/organization/rotating auditor?
   c. Financial reporting quality:
      i. Does internal audit impact FRQ? (Why or why not?)
      ii. How (& why) does systematic rotation impact this effect on FRQ?
   d. Competence:
      i. How does systematic rotation impact the competence/expertise of internal auditors?
      ii. How does systematic rotation impact the attraction of talent to internal audit?

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20 We do not perform mediation analysis examining the effect of systematic rotation on objectivity and competence, and then their effects on FRQ because of the limitations of the empirical proxies for competence and objectivity that we would have to employ. In particular, the proxies for competence used in prior literature do not capture the nuances of how systematic rotation affects competence as described by our interviewees (e.g., enhanced knowledge of operations, etc.). Further, because objectivity is an unbiased mental attitude, there are no empirical proxies for the auditors’ state of mind. Prior research has used chief audit executive reporting structure (i.e., IAF reporting to the audit committee versus management) as a proxy for objectivity. However, our interviews suggest that internal auditor objectivity is still subject to impairment despite procedural controls aimed at ensuring independence as described in the IIA Standards (such as reporting structure). Therefore, we include this measure in our model as a compensating control and do not use it to proxy for objectivity.
iii. How does systematic rotation impact the development of internal auditors with internal auditing skill sets?

iv. Do you think the external auditor would be more (or less) likely to rely on the IAF because it uses (does not use) systematic rotation?

e. Objectivity & independence:
   i. How does systematic rotation impact objectivity of internal auditors?
   ii. How does systematic rotation impact independence of internal auditors?
   f. Do any of the above effects differ based on which positions (staff or CAE) are systematically rotated into management positions?

4. Other practices
   a. Are there any mechanisms in place to enhance the competence/objectivity of internal auditors who are (to be) systematically rotated? (For example, governance mechanisms.)
   b. What practices could be put in place (either in their organization or in another organization) to minimize these potential negative effects?

5. Final Questions
   a. How does your audit committee provide oversight and monitoring over internal auditing function?
   b. How does management impact the work and results of the IAF?
   c. Do you have any additional thoughts on the practice of rotating auditors into operational positions you would like to share?

Appendix B

Variable descriptions

Where:

AuditCommittee
A dichotomous variable taking the value of 1 the audit committee is has all ten Blue-Ribbon Committee for Audit Committee Effectiveness attributes (BRC, 1999)

Age
The years the company has been a publicly listed company computed by summing the number of firm-years for which they have data listed on Compustat

Assets
Total assets of a company (natural log used in testing)

AR
Accounting Risk, based on Audit Integrity’s Accounting Risk ranking (with governance component removed). The ranking ranges between 0 and 100, with 0 being the most conservative ranking and 100 being the most risky.

AuditSpecialist
A dichotomous variable that indicates whether the external auditor is an industry specialist auditor or not. We define industry specialist auditor as a Big N audit firm that provides within-industry market shares 30% greater than if the audit firms were to split the industry evenly among themselves

AuditFee
The natural log of audit fees paid by the company to their external auditor

CAEAC
A dichotomous variable representing whether the chief audit executive reports to the audit committee (yes, CAEAC = 1; no, CAEAC = 0)

CFO
Cash flows from operations

Complexity
The number of operating segments that the company has

Experience
Average number of years of internal audit experience of the internal auditors

FinRaised
The sum of additional cash raised from the issuance of common and preferred stock and the issuance of long-term debt during the year divided by average total assets

FinNeed
A dichotomous variable equal to one if the company’s free cash flow is less than –0.1, and zero otherwise. Free cash flow is calculated as Cash Flows less the average capital expenditure over the last three years, deflated by average total assets

Gindex
Corporate governance metric computed by Gompers et al. (2003). Gindex is formed by giving an organization a point for each takeover defense or lack of shareholder rights for 24 different provisions. For years the metric was not computed (i.e., 2001, 2003, and 2005), the average of the metric for the year before and after the missing year was used. A higher value suggests that management has greater power, which suggests lower corporate governance quality
**IACompetence**

A single composite score measuring the quality of the IAF. The variable can range from zero to five with zero representing the lowest quality and five representing the highest quality. The score is formed by assigning a value of one to scores above the median of the entire sample for Experience, Certification, TimeFin, Training, and IASize, and summing together.

**IASize**

The average dollar amount spent on internal auditing for the industry divided by the average total assets of the industry subtracted from the dollar amount spent on internal auditing per company divided by the company’s total assets. This amount is then divided by the average dollar amount spent on internal auditing for the industry divided by the average total assets of the industry.

**IndustryDummies**

Dichotomous variables used to represent different industries at the one digit SIC code level.

**Lambda**

The inverse Mills’ ratio computed from Eq. (1).

**Leverage**

The sum of long term debt and current liabilities of a company divided by total assets.

**Loss**

A dichotomous variable representing whether the company experienced a loss in the last fiscal year (yes, Loss = 1; no, Loss = 0).

**MB**

A company’s market-to-book ratio.

**MeetOften**

A dichotomous variable equal to 1 if the chief audit executive meets monthly or quarterly with the audit committee and 0 otherwise.

**MeanIndRotate**

The average percentage of firms that use systematic rotation at the industry level.

**MGMTFocus**

A dichotomous variable taking the value of 1 if management expects internal audit to focus on both risk assessments and internal consulting on financial matters (versus a focus on compliance (laws and regulations) or internal consulting on operational matters).

**Rotate**

A dichotomous variable equal to 1 if at least one of the RotateCAE, RotateEmp, or RotateEmp variables equaled 1 and 0 otherwise.

**RotateBoth**

A dichotomous variable indicating whether the company systematically rotates both staff internal auditor positions and the chief audit executive position or not (yes = 1, no = 0).

**RotateCAE**

A dichotomous variable indicating whether the company systematically rotates the chief audit executive position or not (yes = 1, no = 0).

**RotateEmp**

A dichotomous variable indicating whether the company systematically rotates staff internal auditor positions or not (yes = 1, no = 0).

**NYSE**

A dichotomous variable indicating whether the company is listed on the NYSE or not (yes = 1, no = 0).

**Outsource**

A dichotomous variable indicating whether the company outsources some or all of its IAF work to a third party provider or not (yes = 1, no = 0).

**QAR**

A dichotomous variable taking the value of 1 if the IAF has had a QAR (quality annual review) in the last 3 years and zero otherwise.

**Return**

The annualized buy-and-hold return.

**Turnover**

The number of internal auditors who left the IAF scaled by the total number of internal auditors in the IAF.

**YearDummies**

Dichotomous variables used to represent each year in the sample.

*In the original Audit Integrity data, the scale is 0–100 but the riskiest firms have the lowest AR scores. We rescale the AR scores by subtracting from 100 so that the interpretation of the AR scores is more intuitive (i.e., higher scores now indicate more risk).*

*We define industry specialist auditor in a similar fashion to Mayhew and Wilkins (2003) and Knechel, Nailor, and Pacheco (2007): an external audit firm is considered the industry specialist (AuditorSpecialist = 1) if the firm provides within-industry market share 30% greater than if the audit firms were to split the industry evenly among themselves. We measure within-industry market share using two-digit SIC code industry listings. We use the threshold of 30% as industry specialists based on prior research (e.g., Knechel et al., 2007; Mayhew & Wilkins, 2003). We note that studies that examined questions during times that there were Big 8 and Big 6 audit firms in existence used thresholds of 15% (Krishnan, 2003) to 20% (Dunn & Mayhew, 2004). Auditing firms that provide a substantial portion of the auditing to an industry are likely to develop specialized skills that enable them to perform more effective audits.*
References


Koonce, L. (2013). Discussion of “Is the objectivity of internal audit compromised when the internal audit function is a management training ground?”. Accounting & Finance, 53(4), 1021–1028.


