

# Risk Monitoring and Control in Audit Firms: A Research Synthesis

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**SUMMARY:** This paper summarizes the research literature related to audit firm quality control, with a dual purpose: (1) to provide information on the current state of knowledge with regard to the ways in which audit firms monitor and control firm-level risk; and (2) to identify specific areas in which there is currently insufficient research. We review literature on a number of specific topics under the overall heading of firm-level risk monitoring and control, including: client acceptance/continuance procedures, auditor independence (partner and firm rotation, employing former auditors, nonaudit services, partner compensation), electronic decision aids, consultation units, procedures for communicating weaknesses and taking corrective action, and review of engagement activities (including engagement quality reviews, peer reviews, and regulatory inspections). We conclude with a discussion of research relevant to the issue of whether smaller audit firms should be subject to the same level of quality control regulation as larger firms.

**Keywords:** audit firm quality control; risk monitoring; auditing standards; independence risk; whistle-blowing; decision aids.

## INTRODUCTION

The purpose of this paper is to review academic research relevant to audit firm quality control (AFQC); i.e., audit firms' assessment and control of risk that auditing standards, professional values or the public interest might be violated.<sup>1</sup> At this crucial

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<sup>1</sup> The Auditing Section of the American Accounting Association recently convened teams of accounting researchers to summarize research on current or future potential agenda topics of the Public Company Accounting Oversight Board (PCAOB). These topics were originally proposed by the Board's staff and Standing Advisory Group (SAG). The authors were asked to review the literature on audit firm quality control, including processes of risk assessment and monitoring by audit firms. This paper presents our findings relevant to those topics.

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stage in the history of the auditing profession, it is important to summarize the literature relevant to this broad topic for three basic reasons. First, the Public Company Accounting Oversight Board (PCAOB) has placed the general topic of AFQC on its agenda (PCAOB 2004). In particular, the PCAOB has expressed interest in understanding the current status of research on AFQC to assist in establishing standard-setting priorities. Second, while research exists that is relevant to each of the component topics in AFQC, we are unaware of any review of the literature that synthesizes these topics to gain an overall view. Third, there are gaps in the AFQC literature that future research can productively address. This paper will help researchers identify those gaps and consider promising future directions for further study.

The PCAOB's auditing standards include the quality control standards developed by the U.S. Auditing Standards Board prior to the PCAOB's adoption of those standards in 2003.<sup>2</sup> These quality control standards state in general terms that audit firms must have in place an effective system of monitoring, including: inspections, review of selected engagements by individuals not on the engagement team, interpretation of new professional pronouncements, continuing professional education and other professional development, client acceptance and continuance procedures, procedures for communicating weaknesses and taking corrective action, and procedures for ensuring independence, integrity, and objectivity.<sup>3</sup> In the following sections of this paper, we identify research relevant to these activities, assessing the current state of knowledge and its implications for development of new standards and for future research. We begin with studies of the incidence of "quality-threatening behaviors," and then consider research related to specific methods by which audit firms assess, monitor, and reduce risk that standards will be violated and the public interest not served. We conclude with a discussion of research relevant to the issue of whether similar quality control standards should be applied to small as well as large audit firms.

## BACKGROUND

Given that U.S. auditing standards have long contained guidance on ensuring audit firm quality, why is the PCAOB currently considering revision of these standards? Evidence that the existing AFQC standards are insufficient arises from two sources. First, the recent crisis in the profession, including the demise of Arthur Andersen and the profession's transition from self-regulation to external regulation, forms a general backdrop.<sup>4</sup> Second, prior research provides evidence that auditors sometimes engage in quality-threatening behaviors (QTB; also termed "quality-limiting behaviors" or "reduced audit quality acts" by some researchers). The existence of such behaviors, and their detection by researchers in spite of obvious incentives by respondents to not report them, imply that current risk monitoring systems are not completely effective in tracking and eliminating the acts of firm personnel that can lead to audit failure.

Extant research examines the frequency of such QTB as collection of insufficient audit evidence, inadequate workpaper (i.e., audit documentation) review, other violations of generally accepted auditing standards (GAAS), violations of generally accepted accounting

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<sup>2</sup> For efficiency of presentation, we omit the term "interim" throughout the paper when referring to existing auditing standards adopted by the PCAOB (PCAOB 2003). We refer jointly to U.S. audit firm quality control standards as "AFQC," and to individual quality control standards using their original numbers (e.g., QC 20).

<sup>3</sup> Current auditing standards relating to quality control (QC 30) consider the risk-monitoring element. International Standards on Quality Control (IAASB 1999) are explicit that the responsibility of ensuring quality control rests with the organization employing the accountant, and that the responsibility for ensuring an appropriate environment for accounting practice rests with the member bodies of the International Federation of Accountants. However, the main elements of quality control are similar to those contained in U.S. standards.

<sup>4</sup> The nature of and reasons for this crisis have been the subject of a number of articles (e.g., Zeff 2003a, 2003b; Wyatt 2004).

principles (GAAP), failure to book material adjustments, truncating sample sizes, accepting doubtful evidence, relying on internal audit work of questionable quality, insufficient risk adjustment in audit procedure planning, false or premature sign-off, failure to do thorough research, and under-reporting of time.<sup>5</sup> Across these studies, a surprisingly large proportion of auditors admit to engaging in QTB. For example, Kelley and Margheim (1990) report that 31 percent admit to doing less than “reasonable” work, and only 40 percent of the seniors surveyed by Otley and Pierce (1996) deny having prematurely signed off on an audit step.<sup>6</sup> However, inappropriate behavior is perceived to be rare among U.S. audit partners, with the exception of inadequate workpaper review (Carcello et al. 1996). Economic factors found by Carcello et al. (1996) to be associated with GAAS and GAAP violations by partners include client size and fixed-fee contracts. Some audit firm management practices have also been associated with reductions in QTB by prior research, including: organizational commitment to reduce such behaviors (Otley and Pierce 1996), greater structure and supervision in the engagement team (Kelley and Margheim 1990), stronger review procedures and penalties (Malone and Roberts 1996), and attainable time budgets (Otley and Pierce 1996).

While research on QTB is difficult to perform due to confidentiality constraints, the available findings suggest that audit firms can make a difference in their incidence and severity QTB by careful attention to policies and procedures for assessing, monitoring, and controlling risk of violation of professional standards. Thus, the very public crisis resulting from real and perceived threats to audit quality, as well as evidence on private behavior inconsistent with professional standards, imply that a new look at AFQC standards is needed. We now turn to our synthesis of research on specific aspects of AFQC related to risk assessment, monitoring, and control.

### **RESEARCH ON MECHANISMS USED TO ASSESS, MONITOR, AND CONTROL RISK**

While the audit opinion is the observable outcome of the audit engagement, the processes used to form that opinion within individual engagements are by and large unobservable. Balachandran and Ramakrishnan (1987) note that this lack of observability, within an inherently uncertain process, creates agency costs. They find that agency costs are reduced if individual auditors form firms, and if mutual monitoring occurs within firms. Consistent with this basic theory, audit firms have developed methods to monitor and control the risk that their professionals might violate auditing standards, professional values, or the public interest, in the act of performing their responsibilities. In this section, we review these practices in three groups: (1) pre-engagement risk management, including the composition of the firm’s client portfolio and auditor independence; (2) risk management mechanisms available during the conduct of the engagement, including systems to monitor engagement performance, consultation units, and whistle-blowing procedures; and (3) risk management mechanisms available after the engagement, including internal and external inspections and peer review.<sup>7</sup>

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<sup>5</sup> Coram et al. (2004) find that the propensity to commit QTB differs according to the specific act considered. Specifically, auditors are more likely to accept doubtful evidence when time budget pressure is high, regardless of misstatement risk. However, time budget pressure affects sample truncation only when risk is low. This suggests that not all QTB are considered equally serious in terms of violations of auditing standards or firm guidance.

<sup>6</sup> Only 5 percent of those seniors indicated that premature sign-off never occurs, a response that Otley and Pierce (1996) note is somewhat inconsistent with the individuals’ reporting of their own behavior.

<sup>7</sup> Note that we do not cover risk assessment and control within individual audit engagements. See Allen et al. (2006) for a recent review of this literature.

### **Risk Management Before the Engagement**

Selection of the client portfolio and periodic re-assessment of client portfolio risk are fundamental risk monitoring and control processes for audit firms. The U.S. standards on quality control state that audit firms must have in place an effective system of risk monitoring. Under QC 20, firms are required to have policies and procedures in place to determine whether to accept or continue a client relationship or specific engagement. These policies should ensure that the “likelihood of association with a client that lacks integrity is minimized” (QC 20.14). Aside from noting that firms should appropriately consider “the risks associated with providing professional services in the particular circumstances” (QC 20.15), the standard does not provide detailed guidance. International Standards on Auditing (ISA, § 210) note that before accepting a client, and periodically thereafter, auditors should consider whether the association with the client creates any threats to compliance with professional standards (IFAC 2007). Specific client risk factors such as prior illegal activities and questionable financial reporting practices are noted. Section 210 allows the auditor to adopt various risk management practices depending on the nature and severity of the identified risk factors, including applying appropriate knowledge of the client and professional expertise. If reduction of risk to an acceptable level is not possible, Section 210 directs the auditor to decline the relationship.

In this section, we summarize research related to audit firm client portfolio management decisions, and available evidence from audit practice on the processes used by large firms to make these decisions. Theories of audit firm portfolio formation and management provide several insights useful in considering empirical findings. For example, Simunic and Stein (1990) consider the addition of clients to an audit portfolio as an investment problem. In their model, the incremental client is a risky asset, and the expected return from the engagement should be considered in light of the characteristics of returns of other assets already held. Simunic and Stein (1990) note that post-audit losses of the incremental client will generally covary to some degree with postaudit losses on existing clients (for instance, due to common industry factors and environmental conditions). Thus, the level of fees necessary to compensate the firm for the incremental risk depends on the nature of this covariation. Beck and Wu (2006) extend this notion, showing that in addition to correlation in client-specific risks within the portfolio, the judgment errors made by auditors may be correlated as well. Beck and Wu (2006) acknowledge that auditors’ judgment quality may improve due to common engagement approaches and concentration on certain industries. However, the use of given personnel and practices across engagements could also lead to spreading of judgment errors. Both Simunic and Stein (1990) and Beck and Wu (2006) conclude that the auditor’s portfolio problem involves multiple sources of risk, which interact in complex ways. These studies imply that audit firms should assess client-specific and environmental risks, monitor the levels of those risks, and make decisions on individual clients within their chosen portfolio strategy.

Empirical research on audit firm client portfolio risk management examines the outcomes of these client portfolio decisions in two basic ways: (1) tracking risk characteristics of portfolios of individual audit firms or groups of firms (i.e., large versus small firms) over time, and (2) directly modeling client acceptance or retention decisions. We first consider studies investigating changes in the risk profile of publicly traded clients in audit firm portfolios over time. Declining risk of a firm’s clients over time could signal that its client acceptance and retention practices are successful in achieving a goal of reducing portfolio risk. On the other hand, a firm could selectively choose to increase portfolio risk in a given period if the return for doing so is considered appropriate. Several studies in this line of research investigate the financial risk profile of audit firm portfolios using publicly available

data, comparing portfolio characteristics of large versus small firms over time. For example, Francis and Krishnan (2002) find increasing financial risk in large audit firms' portfolios during the early 1990s and relative stability in risk during the late 1990s. However, Jones and Raghunandan (1998) and Choi et al. (2004) report a decline in financial risk during the early 1990s, and Choi et al. (2004) report increasing financial risk in the late 1990s. Thus, results of these studies are inconsistent. One reason for variability in findings, suggested by DeFond (2004), is that portfolio decisions are likely more linked to audit risk than financial risk.<sup>8</sup> If so, reliance on publicly available financial risk measures may fail to detect differences. Johnstone and Bedard (2004) address this issue by comparing sub-portfolios of continuing, new, and rejected clients in one firm's continuing base. They find this firm's continuing client portfolio is declining in risk, and that differences are most evident in audit risk variables (e.g., engagement partners' judgments of financial reporting risk). Johnstone and Bedard's use of proprietary data to measure audit risk expands the set of factors available for research, yet confines the researchers to a single firm. Further research using data from other firms would be helpful in assessing the generalizability of their results.

Another limitation of research measuring changes in overall portfolio risk is that these changes could result from clients' decisions to terminate the auditor relationship, and/or to economic differences that are beyond the control of the audit firm. Other studies consider audit firm portfolio changes more directly, by examining client acceptance decisions, retention/termination decisions, or both. On the client acceptance side, research is complicated by the fact that the acquisition of a new client by an accounting firm is the product of a joint decision by the client and the auditor. For instance, Abbott and Parker (2000) study the association of auditor selection and audit committee characteristics, but frame their findings in terms of the client's choice. Sankaraguruswamy and Whisenant (2004) find that clients switching to larger firms cite service-related reasons, while those switching to smaller firms cite fee-related reasons. One study that is able to separate the audit firm's client acceptance decision from the client's auditor choice decision is Johnstone and Bedard (2003). Using proprietary data, they compare the characteristics of clients accepted and rejected for service by a large firm.<sup>9</sup> They find that risk-management strategies (higher billing rate and/or plans to assign specialist personnel) moderate the association of risk with client acceptance. This implies that the firm is willing to take on riskier clients if the billing rate allows increased testing and/or assignment of more highly qualified engagement personnel.

Behavioral research also addresses the client acceptance decision. For instance, Cohen and Hanno (2000) find that client management philosophy and governance structure affect auditors' client acceptance decisions. Johnstone (2000) shows that client acceptance decisions are affected by risk, and that risk adaptation strategies (including engagement pricing, team experience, and testing strategies) do not moderate the effect of risk on the decision. (This result contrasts with the previously discussed archival finding of Johnstone and Bedard [2003]). More recently, Asare et al. (2005) find that risk affects client acceptance decisions, and that this association is not moderated by the extent of nonaudit services.

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<sup>8</sup> Support for this assertion comes from international auditing standards Section 210, which cite specific risk factors such as client integrity as important to client acceptance/continuance decisions, but make no mention of change in client financial risk.

<sup>9</sup> Note that the subject firm of this study is not the same as that of the Johnstone and Bedard (2004) portfolio risk study, previously cited.

With respect to engagement termination decisions, several studies show that these decisions are associated with various risk measures.<sup>10</sup> For example, Krishnan and Krishnan (1997) and Shu (2000) show that auditor resignations are affected by litigation risk.<sup>11</sup> Raghunandan and Rama (1999) find that large audit firms are less likely to perform an engagement following an auditor resignation than a client dismissal. This result implies that the large firms share a common view of risk in the client acceptance decision, and/or that prior auditor resignation is an incremental risk signal. Lee et al. (2004) show that auditors are less (more) likely to resign from clients with higher (lower) quality corporate governance. Read et al. (2004) find that small firms resigned from public company engagements in 2000–2003 due to increased regulatory oversight and liability insurance costs. Ettredge et al. (2006) find that auditor resignation is more likely for clients reporting material weaknesses in internal control under The Sarbanes-Oxley Act (SOX), Section 404 (U.S. House of Representatives 2002). They also find that clients whose Big 4 auditors resign are less likely to be picked up by another Big 4 firm if they have company-level internal control weakness. DeFond et al. (1997) find that companies whose auditors resign have a higher likelihood of adverse outcomes following resignation, and their equity market values decline.

In addition to the empirical literature cited above, there are some descriptions of audit client portfolio decision practices in the literature. Winograd et al. (2000) describe audit methodologies at PricewaterhouseCoopers, including systems in support of client portfolio management decisions. Bell et al. (2002) present an extensive description of KPMG's client acceptance/continuance system. Both firms have highly developed electronic decision aids to measure and manage client risk in the acceptance and retention decisions, and both have developed procedures around these systems that aid in monitoring client portfolio risk. Such systems have potential to improve central monitoring of local office partner client portfolio decisions. While auditing standards could encourage or require annual portfolio risk assessment, these systems are very costly to develop and maintain.

In summary, the findings of research cited in this section have implications for future research as well as for standard setting relative to portfolio risk assessment and monitoring. The theory of audit firm portfolio management suggests that the audit environment affects the expected distribution of returns from audits of existing and potential clients, and the association among them. Thus, recent changes in the regulatory and economic environment should lead to shifts in audit firm portfolios. For instance, some recent research suggests that larger firms are shedding smaller, riskier clients to smaller audit firms due to the combined effects of the Andersen demise and pressures of adding Section 404 internal control evaluations to their audit workload. Further, smaller clients choose smaller firms on the basis of fees. These factors suggest that client portfolio risk has recently increased among smaller firms, and may continue to do so. In addition, smaller firms may be less able than larger firms to price engagement bids to cover increased exposure from riskier clients, due to greater fee sensitivity of their clients. Smaller firms may also be more prone to the risk of correlated judgment errors identified by Beck and Wu (2006), because their personnel are less able to specialize and more likely to be assigned across multiple engagements. The research cited in this section suggests the following questions for further study:

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<sup>10</sup> Because we are interested in audit firms' portfolio change decisions, we do not review studies focusing primarily on clients' decisions to dismiss their auditors (e.g., Krishnan 1994; Carcello and Neal 2003).

<sup>11</sup> Anecdotal evidence suggests that firms may incite client termination by raising fees in circumstances where there is risk in dismissing the client.

- RQ1:** What are the features of client acceptance/continuance systems currently used by accounting firms? For instance, to what extent are these systems fully electronic? How are audit programs affected by risk judgments made during client acceptance/continuance? Do different system features affect partners' decisions on client acceptance or retention? What are the effects of different features on individual auditor work practices (e.g., operating autonomy of line partners) and work attitudes?
- RQ2:** How have client acceptance/continuance decisions changed since the advent of SOX? Has the weighting of risk factors such as client management integrity and governance structure shifted over time?
- RQ3:** What are the effects of post-SOX auditor realignments on audit quality?
- RQ4:** How does the extent of competition for an audit engagement affect client acceptance decisions in the current environment?
- RQ5:** Do large audit firms respond to correlated client business risks across the portfolio by differentially assigning personnel across engagements, to reduce risk of correlated judgment errors? If so, what is the relative ability of smaller firms to reduce this source of risk?
- RQ6:** Is a firm's decision to contract or expand the industries in its client portfolio associated with changes in audit quality (i.e., does industry specialization lead to lower audit risk)?

### **Monitoring and Control of Auditor Independence Risk**

In this section, we review literature on auditor independence, which covers a variety of specific topics pertaining to audit quality, including partner and firm rotation, employment of former auditors, the provision of nonaudit services and partner compensation.<sup>12</sup> While these decisions on client relationships and personnel issues take place prior to performance of an audit engagement, they can influence the conduct of the auditor during the engagement. Researchers have employed archival, analytical, and behavioral methodologies to examine these issues.

#### ***Audit Firm and Partner Rotation***

The effects of long tenure on auditor independence have been debated for many years. As noted by Arel et al. (2005), independence concerns can arise from close relationships with client management, inattentiveness to detail due to staleness, and eagerness to please the client to maintain the "annuity" of fees. Both clients and auditors have generally opposed regulation aimed at limiting the auditor's term. Their opposition is based on the costs of periodically introducing a new auditor, including potential inefficiency (as the new auditor seeks to gain knowledge necessary to perform the engagement), and ineffectiveness (from information asymmetry while the new auditor is gaining that knowledge). While limits on audit firm tenure have not been applied in the U.S., SOX Section 203 imposes a five-year term limit on lead and reviewing audit engagement partners (U.S. House of Representatives 2002).

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<sup>12</sup> Recently, large accounting firms have created independence monitoring systems to ensure that their personnel are in compliance with regulatory restrictions. Since there is no research addressing these systems to date, we do not include the effectiveness of these systems as a topic in the literature review. However, research directed at the costs and benefits of independence monitoring systems would be very useful.

Prior research examines firm and partner rotation using archival, behavioral, and survey methods. Archival research is limited in its ability to directly assess the potential effects of mandatory rotation regimes. Instead, these studies tend to focus on the length of auditor tenure. For instance, using audit quality reviews by a public agency, Deis and Giroux (1992) find that poorer audit quality is associated with longer audit tenure, suggesting a benefit to auditor rotation. Vanstraelen (2000) examines the likelihood of issuing a qualified opinion given the length of the auditor/client relationship, finding mixed results. Long-term relationships increase the likelihood of the auditor issuing an unqualified report, but auditors in the last year of the engagement are more likely to qualify the opinion. Geiger and Raghunandan (2002) investigate the association between the types of audit opinion issued immediately prior to bankruptcy and the length of auditor tenure. They find significantly more audit reporting failures in the early years of the auditor/client relationship, suggesting that rotation may be detrimental. Myers et al. (2003) examine the relationship between auditor tenure and accounting accruals. Their results show that longer audit tenure (among clients with at least a five-year relationship) is associated with higher earnings quality. Similarly, Johnson et al. (2002) find that auditor tenure in excess of four years is associated with better financial reporting among Big 6 clients. Taking advantage of the Australian requirement that individual partners sign audit opinions, Carey and Simnett (2005) examine the association of audit partner rotation with several measures of auditor independence using data from the 1990s. For long tenure auditors, they find some evidence of a lower propensity to issue going concern opinions and a greater likelihood that clients of non-Big 6 firms will just beat earnings benchmarks. However, they find no effect of increasing tenure on unexpected accruals. Davis et al. (2006) show that companies with short or very long (15 years or more) auditor tenure are more likely to report discretionary accruals allowing them to meet or beat earnings forecasts.

While results of archival studies of audit firm (or partner) tenure or rotation are inconsistent, behavioral research provides evidence in support of firm or partner rotation. Dopuch et al. (2001) use experimental methods to assess the extent to which varying regimes of rotation and retention affect auditor independence. They find that auditors' reports are more biased in favor of management in regimes not requiring rotation or retention. However, they note that their experiments do not allow for competition and reputation effects, which provide incentives for auditors to produce unbiased reports. Examining the impact of concurring partner review continuity in an experimental setting, Favere-Marchesi and Emby (2005) report that continuing concurring partners are less likely than new concurring partners to conclude that purchased goodwill may be impaired. Hatfield et al. (2006) examine the effects of partner and firm rotation and client pressure on partners' proposed audit adjustments. Their results show that auditors in the partner and firm rotation regimes propose significantly larger adjustments than auditors in the nonrotation regime. Further, proposed adjustments in the audit partner and audit firm rotation regimes are similar, suggesting that partner rotation (the less costly alternative) might be a sufficient substitute for firm rotation.

Other studies consider independence in appearance. In an archival study, Ghosh and Moon (2005) find that earnings response coefficients are greater for clients with longer-tenure auditors, suggesting that market participants consider those earnings to be more useful. Using a survey approach, Iyer and Rama (2004) study the opinions of corporate officers regarding how various power dynamics between auditors and clients influence auditor judgments. Respondents from companies with short-tenure auditors are more likely than those with long-serving auditors to believe they can persuade the auditor to accept their position. However, a survey by the Governmental Accountability Office (2003b) of

stakeholders such as institutional investors, stock market regulators, etc., concludes that the costs of mandatory audit firm rotation may not exceed its benefits. The GAO recommended against implementing such a policy pending further experience with other auditor independence provisions of SOX.

In sum, archival studies of audit firm and partner rotation provide mixed results. In contrast, behavioral studies support the importance of independence in fact and appearance achieved by rotation. These studies suggest the following research questions:

- RQ7:** Archival studies of the association of longer auditor tenure with audit quality vary in conclusions, yet behavioral studies are fairly consistent in support of rotation. Archival studies feature differences in measurement of audit quality, sample composition, locales, and time periods. Which of these differences is the main source of variation in conclusions on this issue? Also, have the provisions of SOX related to auditor independence mitigated the effects of longer auditor tenure in the U.S., such that firm rotation might no longer be necessary?
- RQ8:** What client, firm, individual, and environmental characteristics might moderate the influence of partner/firm rotation on audit quality? For instance, would training in professional skepticism be effective in reducing effects of close client relationships?
- RQ9:** Arel et al. (2005) note that both motivational (eagerness to please) and decision process (inattention to new evidence) conditions may affect the issue of audit quality and firm rotation. Behavioral research could assess the extent to which client familiarity affects evidence acquisition and/or evaluation.
- RQ10:** Do investors perceive that financial information from engagements with firm rotation and/or engagement team rotation is more reliable than financial information from engagements with partner rotation?

### ***Employing Former Auditors***

The “revolving door” problem, in which engagement team members are subsequently employed by the client, is another focus of concern regarding auditor independence. Again, this activity has been restricted by SOX: Section 206 establishes a one-year cooling off period before a member of the engagement team can accept employment in key client positions. In one of the earliest studies of this issue, Imhoff (1978) surveyed bankers, financial analysts, and certified public accountants to investigate the impact of a cooling-off period and auditor rank on perceived independence. Results indicate that the perceived loss of independence in periods leading up to employment is greater with shorter cooling-off periods, and this perception differs across auditor ranks. Short cooling-off periods appear sufficient for nonsupervisory auditors, while longer periods are viewed as appropriate for supervisory auditors. Later studies by Firth (1980) and Koh and Mahathevan (1993) report similar results.

Other researchers use archival methods to examine issues surrounding the employment of former auditors. For example, Behn et al. (1999) find that 33 percent of Fortune 1000 controllers had prior experience with the current audit firm, suggesting that employment of former auditors is widespread. There is also some evidence of independence impairment associated with this practice. Beasley et al. (2000) find that five of 44 companies with

fraudulent financial reports had CFOs formerly employed by the company's current auditor. Menon and Williams (2004) find that companies employing former partners as financial officers have larger abnormal accruals than other companies do. They argue that their findings suggest that auditors may judge lower audit risk in companies employing former partners and also raise materiality levels for accruals. This signals a loss of professional skepticism as well as a loss of independence. On the other hand, Geiger et al. (2005) find no evidence that either total accruals or nonoperating accruals of companies employing former auditors differ significantly from control groups. They argue that this evidence does not support the contention that companies hiring former auditors engage in aggressive financial reporting.

- RQ11:** How are audits affected when clients employ former auditors? What are the client, firm, individual and environmental factors that moderate this impact? To what extent does the audit firm's familiarity with the former auditor impact audit risk?
- RQ12:** SOX Section 206 limits clients' employment of former auditors by requiring a one-year cooling-off period. How has this affected the employment of former audit firm personnel by clients? Does the effect on earnings quality of clients employing former auditors under the new regulation differ from the pre-SOX period?
- RQ13:** Do auditors perceive a client's financial statements to be more reliable when the client employs a former colleague? How does this compare to the employment of a former auditor from another firm? Do the circumstances surrounding the former auditor's departure from the firm affect perceptions regarding the client's financial statements?

### *Auditor-Provided Nonaudit Services*

Among the more researched topics regarding auditor independence is whether the provision of nonaudit services (NAS) to audit clients is associated with variation in audit quality. While auditors are permitted to provide NAS in certain circumstances, current rules prohibiting the provision of certain of these services to audit clients (SOX Section 201) are based on the principle that the provision of such services is detrimental to the actual and/or perceived quality of audited financial statements.<sup>13</sup>

With respect to the relation between nonaudit services and earnings quality, research findings vary. In an early study, Frankel et al. (2002) report that NAS fees are positively related to the magnitude of discretionary accruals and the propensity to meet or just beat earnings benchmarks. Similarly, Dee et al. (2006) find that clients paying high proportions of nonaudit fees have higher income-increasing accruals. In contrast, Ashbaugh et al. (2003) find no association of NAS with accruals or meeting earnings benchmarks. Also, Chung and Kallapur (2003) find no association of nonaudit service fees with abnormal accruals for Big 5 clients, even among more important clients of the firms. Further, some studies (Reynolds et al. 2004; Larcker and Richardson 2004) report a positive relation between NAS and earnings quality among subsets of their larger samples. A few recent studies examine changes in NAS relationships since SOX. For instance, Hoitash et al. (2007) document a positive association between nonaudit fees and discretionary accruals prior to

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<sup>13</sup> Only those studies that examine the effect on actual independence are included here as the focus of this paper is on actual audit quality. For reviews of the literature on perceived independence, see Schneider et al. (2006) and Gramling et al. (2006).

SOX, but no such association in 2002 and 2003. Separately examining specific types of NAS, Huang et al. (2007) find some evidence that nonaudit tax and audit-related services are associated with higher earnings quality, and no association of NAS with earnings surprises. Also studying a specific type of NAS, Omer et al. (2006) document a declining market for auditor-provided tax services from 2000 to 2003. They find a decreasing association of tax fees with unexpected audit fees, but an increasing association with auditor tenure, through the period.

Studies assessing the relation between NAS and audit opinions, audit risk assessment, or restatements provide further evidence. Regarding the audit opinions, the literature typically examines the auditor's opinion decision for financially distressed companies. The results of these studies (Geiger and Rama 2003; DeFond et al. 2002; Craswell et al. 2002) do not find that audit opinions are influenced by whether the auditor provides NAS to the client. Other studies (Kinney et al. 2004; Raghunandan et al. 2003) examine audit quality by focusing on the relation between restatements of audited financial statements (an explicit signal of poor audit quality) and the provision of NAS. While Kinney et al. (2004) show mixed results, neither study strongly supports the assertion that audit quality is impacted by NAS provision.

In sum, the balance of current empirical research does not appear to support the conclusion that auditor independence is compromised by provision of NAS. The few behavioral studies on this topic provide mixed results. Asare et al. (2005) find that the association of risk with client acceptance decisions is not affected by the extent of nonaudit services. In contrast, Felix et al. (2005) find that when significant NAS are provided, client pressure may affect the performance of the audit in a manner which might lead to reduced quality. Specifically, NAS are associated with greater willingness to rely on the work of the client's internal auditors when the quality of that work is low. Joe and Vandervelde (2007) find a positive knowledge spillover related to NAS services in the form of higher risk assessments made by auditors who perform both audit and NAS tasks, relative to NAS work performed by another person in the same firm or by another firm altogether. However, auditors performing both audit and nonaudit tasks identified fewer fraud risk factors, suggesting reduced skepticism. The following research questions are suggested:

- RQ14:** Given the current regulatory focus on the provision of NAS by auditors, what is the association of audit quality with NAS of various types before and after SOX? That is, have the restrictions on NAS led to higher quality audits?
- RQ15:** Nonaudit tax services are of particular interest, as some research shows higher earnings quality in clients purchasing these services. While auditor-provided tax services are not prohibited, the amount of tax services provided to audit clients is significantly lower since SOX. Are these services merely spread to other providers? What are the effects of this trend on preparation of the tax accrual, and on the quality of corporate tax planning?
- RQ16:** After SOX constrained the provision of NAS by auditors, has the market for consulting by audit firms decreased, or merely shifted to firms other than the external auditor? How are the services formerly provided by the auditor awarded to other providers, including public accounting firms? Are audit fees and audit quality affected by the type of firm (i.e., Big 4, national, regional) that took over provision of the NAS?

- RQ17:** Why do results on the implications of NAS tend to differ between behavioral and archival studies? There are several possibilities that could be investigated by further research, including the possibility that while audit planning and risk assessment may be affected by NAS, the ultimate impact of these biases on engagement outcome is mitigated at further stages in the audit, such as evidence evaluation and engagement review.

### ***Partner Compensation***

A few studies examine the fundamental question of whether compensation schemes affect auditors' ability to remain independent. Trompeter (1994) and Carcello et al. (2000) investigate whether auditors from "large profit pool" and "small profit pool" firms make systematically different reporting decisions.<sup>14</sup> Trompeter's (1994) findings indicate that partners whose compensation is part of a small pool scheme make decisions that are less objective than partners whose compensation is determined in a large pool scheme. However, he suggests that small profit pool firms may have internal monitoring mechanisms (i.e., peer review) that mitigate the potential loss of objectivity. Carcello et al. (2000) find no archival evidence that reporting decisions are influenced by compensation plans, but do find that partners in small pool firms may be more sensitive to pressures resulting from client size than partners in large pool firms.

Liu and Simunic (2005) use analytical modeling to examine the effects of compensation on partners' behaviors. Their model suggests parity between a firm's compensation scheme and the complexity of audit engagements. For example, large profit pool firms likely have engagements that are more complex, requiring greater collaboration across partners and offices, while small profit pool firms likely have engagements that are less complex, requiring less collaboration. As collaboration increases, profits and the resultant legal liability should be appropriately shared by a larger number of partners.

- RQ18:** How do partner compensation schemes vary depending on firm size, firm industry specialization, and the relative size of international versus U.S. practices of firms?
- RQ19:** Is there an association between partner compensation schemes and audit quality? If so, what are the mediating factors in this relationship?
- RQ20:** What are the implications for audit quality of paying bonuses to non-partner professional staff? Do these bonuses affect the occurrence of quality-threatening behaviors (e.g., truncating sample size, false sign-offs, and underreporting time)?

### **Risk Management During the Engagement**

#### ***Electronic Decision Aids***

AFQC standards do not address the specific mechanisms used by firms to achieve quality control. Given the diffuse nature of operations of public accounting firms, risk management has traditionally been performed primarily at the local level. However, larger firms have adopted risk management practices and procedures using formalized electronic

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<sup>14</sup> Small profit pool firms appear to determine partner compensation based primarily on factors such as engagement and office profits, while large profit pool firms appear to determine compensation based primarily on attracting new clients, generation of additional services revenues, technical expertise, and partner tenure (Trompeter 1994).

decision support systems and models, enabling centralization of control over these processes. A growing body of research relates to these systems, including articles in practitioner and research publications, citing the increasing use of electronic practice tools in the auditing profession. For instance, Kepczyk (2005) reports results of a survey of 140 accounting firms on the frequency of performing various audit tasks in electronic work environments. Recent increases in the use of electronic environments range from 14 to 92 percent, and occur in all but two of the tasks. However, the survey is not specific regarding the extent of computerization in the audit process. For example, while 59 percent of the surveyed firms stored audit workpapers electronically in 2005, the extent to which workpaper preparation and review are performed online is not included among the survey questions.

Electronic practice tools have the potential to improve quality monitoring, especially relating to *ex post* engagement review and inspection. The potential to improve decision quality was among the primary reasons for the early development of decision aids, and this objective continues to be cited today (e.g., Bell et al. 2002). For instance, Pierce and Sweeney (2005) suggest that electronic files provide improved potential to monitor actions of employees, relative to paper files. Dowling and Leech (2007) report on auditing decision aids and electronic work systems among global auditing firms, discussing barriers to implementation of those systems. They summarize the following benefits of these systems: enhancing audit quality through compliance with auditing standards and audit methodology, increasing audit efficiency, ensuring a consistent audit approach across clients, forcing compliance with a firm's audit methodology, improving risk management, facilitating documentation, and controlling junior staff.<sup>15</sup> Banker et al. (2002) provide evidence on the effects of information technology in audit firms. Their findings suggest increased efficiency following implementation of information technologies.

Over the last two decades, there are a number of behavioral studies on the use of decision aids in auditing.<sup>16</sup> Early research on decision aid use in auditing illustrates the possible costs and benefits associated with use of such aids. Surveying this literature, Dowling and Leech (2007) note that research has identified costs associated with decision aid implementation, including: over-reliance on recommendations made by the system, mechanistic behavior (i.e., emphasis on "ticking the box" over judgment), significant training required, lack of stability of technology, lack of cost efficiency for small jobs, and limitations on use due to perceived complexity. These features can result in auditors not adopting a decision aid or misusing it. For example, Kachelmeier and Messier (1990) find that auditors "work backward" from a desired outcome to select input parameters that will achieve that outcome. These studies identify some features of decision aid use that might inhibit their application in practice, and/or their potential to realize full effectiveness or efficiency.

Several studies (e.g., Bedard and Graham 2002; O'Donnell and Schultz 2005) find that decision aid designs available to audit firms can impact decision quality. Bedard and Graham (2002) show that negatively worded questions in a risk assessment decision aid (i.e., asking level of agreement to assertions that the client is high-risk, rather than low-risk) result in greater attention to specific indicators of client risk. This suggests greater

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<sup>15</sup> The ability of electronic systems to achieve these goals obviously depends on system characteristics. For example, electronic storage of workpapers is widespread (Kepczyk 2005), but provides less ability for local and national partners to monitor and control risk than a fully integrated, interactive electronic workpaper system.

<sup>16</sup> We do not summarize these studies in depth here, as other reviews of this literature exist (e.g., Messier 1995; Dowling and Leech 2007). We focus instead on more-recent studies that apply to electronic audit decision aids and work systems, as these systems have a more direct bearing on current audit firm risk management practices.

effectiveness in risk identification and assessment when firms orient decision aids in a negative manner. O'Donnell and Schultz (2005) find that a "halo effect" resulting from making a prior global strategic risk assessment might bias auditors against subsequently detecting specific account fluctuations. Thus, the order of tasks in decision aids could impact audit effectiveness.

Some recent research examines comprehensive audit work systems. In particular, both Bible et al. (2005) and Bedard et al. (2006) show that auditors have difficulty "navigating" around an electronic workpaper system (i.e., jumping from one workpaper to another through hypertext links without losing track of work). To the extent that some audit work is done outside the electronic system to avoid this difficulty, the firm's ability to monitor work using the system is potentially reduced. Rosman et al. (2007) track decision processes of auditors who successfully perform tasks in electronic and paper workpaper environments. They find that auditors who adopt certain strategies, such as reduced navigation (i.e., less planning and cue acquisition) and increased processing (i.e., more evaluation and elaboration), are more likely to overcome the complexities involved in electronic workpaper reviews. This implies that appropriate training will help auditors be more effective in electronic environments. Surveying a large sample of auditors at several firms, Dowling (2007) finds that participants generally use electronic systems appropriately. However, inappropriate use is linked to individual characteristics of the user and the restrictiveness of the system. Both Dowling's comprehensive survey and the Bedard et al. (2006) study of electronic workpapers suggest that while auditors usually use electronic tools appropriately, remaining pockets of resistance may decrease the effectiveness of the tools and thus increase risk to the firm. Because Bedard et al. (2006) find that work-around behaviors are more frequent among partners and managers, it is important to assess whether training affects perceptions of system difficulty. On that issue, Bedard et al. (2003) find that hands-on training improves system perceptions and intentions of audit workpaper preparers (seniors and associates), but does not affect the perceptions of workpaper reviewers (managers and partners). Thus, further research is needed on how to ensure appropriate use of electronic decision aids by more experienced auditors.

In sum, the research cited in this section shows the continuing proliferation of electronic decision aids in audit firms. These systems range from the simple (e.g., electronic storage of portable document format [pdf] files of audit workpapers that were prepared on paper) to the very complex (e.g., some Big 4 firms' client acceptance systems). Such systems have the potential advantage of promoting efficiency and consistency. Furthermore, maintaining electronic files of engagement and other client information enhances the ability of firm management to monitor quality, and enhances the ability of internal reviewers and external inspectors to oversee audit processes. However, some limited research identifies issues of effective and efficient system use. The following research questions are suggested:

- RQ21:** What is the current status of implementation of electronic work systems (e.g., electronic workpapers, risk assessment, planning, etc.) in the profession, by size of firm? Is variance in system implementation associated with differences in audit quality? Does the use of electronic work systems change the incidence and/or nature of quality-threatening behaviors?
- RQ22:** Is resistance to implementation of electronic work systems associated with a decline in audit effectiveness (not just efficiency) on some engagements? Does the level of resistance change over time? How do system and auditor characteristics affect continued resistance to electronic

work systems? What intervention techniques are most effective in stemming resistance to decision aids and electronic work systems?

**RQ23:** Do individual auditor characteristics (e.g., experience, knowledge, computer skills) impact the effectiveness of audit review using electronic workpaper systems?

**RQ24:** What are the effects of the electronic auditing environment on the training and performance of audit staff? How well and how quickly do auditors acquire skills (such as engagement review) in electronic versus paper environments?

### *Consultation Units*

Accounting firms can also control risk by developing specialized internal groups to assist practice offices in making decisions related to client financial statements (Salterio 1994). These groups are often referred to as central research units (CRU) and accounting consultation units (ACU).<sup>17</sup> A CRU fulfills a practice support role by providing research support and information to local practice partners, and is not expected to dictate a single “best solution” to a client’s accounting problem. An ACU also conducts research, but does so in order to provide practice partners with definitive directions on a best solution (Salterio and Denham 1997). There are different levels of financial support, required consultation, documentation, and reliance on research and consultation units within the largest accounting firms (Salterio and Denham 1997). Given the frequency and nature of auditor-client negotiations (Trotman et al. 2005; Iyer and Rama 2004; Kadous et al. 2003; Gibbins et al. 2001), investment in these units seems desirable.

CRUs and ACUs may be found in large or small accounting firms, but the research of Salterio and Denham (1997) suggests that the operations of these groups differs significantly across firms and are most well formed in larger firms. For example, while Salterio and Denham find the five largest firms in Canada to have reasonably well functioning consultation and research units, the sixth through the eighth largest firms display much greater variability. Specifically, these mid-tier firms typically have units that are very small, operated as “one person” functions, lack written consultation policies, and tend to change how they function when the unit’s manager changes.

Not surprisingly, there is considerable variability in the issues for which firms require consultation, even though all the examined firms’ manuals “endorsed the principle of consultation as being an important activity” (Salterio and Denham 1997, 676). For example, one firm does not require any specific issues be taken to the unit, while other firms require consultation for varying topics. Issues for which consultation is mandatory included material departures from the *CICA Handbook* recommendations (i.e., Canadian GAAP), going concern problems, nonarms-length transactions, and corporate restructuring transactions.

Salterio and Denham (1997) classify ACUs as generally being either “discovering organizations” or “conditioned viewing organizations.” Discovering organizations are characterized by well-staffed ACUs with a high profile, which share their work through internal newsletters and other outlets, maintain proprietary records of prior client-specific issues, and make extensive use of external and internal databases. These ACUs are proactive and encourage practice offices to consult with them prior to a client’s initiation of a transaction.

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<sup>17</sup> Because the research on consultation units tends to have been conducted in Canadian accounting firms, the terminology used is consistent with the Canadian environment. Alternative organizational schemes or units might be used by firms in the United States and elsewhere.

Further, these ACUs consider it important to understand the client's reasons for entering into particular transactions. On the other hand, conditioned viewing organizations are more often small departments that maintain a low profile within their firms. There are no newsletters or other formal means by which the group shares its work with others, consultation of external databases is rare, and they do not maintain proprietary records of past advice. Consequently, consistency of application is achieved through informal mechanisms and communication channels. These ACUs neither encourage practice offices to consult with them prior to a client's initiation of a transaction, nor do they consider it important to understand the client's reasons for entering into particular transactions.

For those firms that utilize centralized units, there are tangible benefits. For example, managers who rotate through assignments in these units become more proficient at conducting research (Salterio 1994) and share their knowledge and information about the firm's research resources after returning to their practice offices (Salterio and Denham 1997). This information sharing is important in light of earlier research that finds local partners rarely consult such units (Danos et al. 1989). Also, personnel in these units regularly participate in negotiations with clients regarding accounting matters (Gibbins et al. 2001), so their expertise assists the firm in addressing client service concerns. Another significant benefit accruing to firms from CRUs and ACUs is the creation of an organizational memory, a vast database of research that can be drawn on during future engagements (Salterio and Denham 1997). Not only does this database create efficiencies for a firm, but it also improves the consistency of accounting treatments recommended to clients, a matter of past concern (Schuetze 1994).

In conclusion, CRUs and ACUs likely provide significant benefits to firms, although their use is inconsistent across the profession and declines significantly with firm size. The following research questions are suggested:

- RQ25:** How has the consultation function changed in U.S. auditing firms since the advent of SOX, in terms of organizational structure and consultation practices? For example, are more firms using the ACU model and requiring compliance with advice?
- RQ26:** Does the use of a CRU have a different effect on audit quality than use of an ACU?
- RQ27:** Do more structured firms achieve more consistent recommendations from their consultation and research units than less structured firms do? If so, does the greater consistency lead to fewer financial statement restatements by clients?
- RQ28:** How do conditioned viewing firms ensure that they provide consistent guidance to practice office personnel? How do discovering firms ensure adequate considerations of different points of view when confronted with similar situations?
- RQ29:** For firms with active consultation units, what are the factors that influence whether engagement teams consult with these offices? Has the nature and extent of consultation requested by engagement teams changed since the demise of Andersen and the passage of SOX?

**RQ30:** What audit firm governance mechanisms help to enforce policies regarding consultation? For example, is appropriate use of consultation considered in performance reviews or compensation decisions? How effective are these mechanisms?

### *Whistle-Blower Mechanisms*

SOX Section 304 requires that audit committees of public companies establish “whistle-blower” mechanisms; i.e., procedures for the confidential, anonymous submission by employees of concerns regarding questionable accounting or auditing matters.<sup>18</sup> Although no such requirements currently exist for public accounting firms, the PCAOB’s Standing Advisory Group has discussed this possibility (PCAOB 2004). Information gathered from industry surveys (PwC 2005) and behavioral experiments suggest that the presence of confidential reporting mechanisms increases the likelihood that reports of wrongdoing will be made.

Research shows that the individual propensity to report the wrongdoing of others is impacted perhaps most strongly by the context in which the wrongdoing occurs (Ayres and Kaplan 2005; Schultz et al. 1993; Finn and Lampe 1992; Kaplan and Whitecotton 2001; Near et al. 2004). For example, Curtis (2006a) finds that individuals are much more willing to report instances of employee fraud than management fraud. Organizational characteristics (such as likelihood of rewards and punishments) and organizational culture, (including moral attitude) also influence reporting behavior (Arnold and Ponemon 1991; Chiu 2003; Curtis 2006a; Hooks et al. 1994; Kaplan and Whitecotton 2001; Ponemon 1994; Schultz et al. 1993).

Accounting research suggests many individual characteristics that may influence whistle-blowing behavior, including moral reasoning ability, desire for self-gain, national origin, personal sense of responsibility, locus of control, moral perspective, personal beliefs regarding the individual’s responsibility to report wrong-doing, position within the firm, and even mood (Arnold and Ponemon 1991; Ayres and Kaplan 2005; Curtis 2006a; Curtis 2006b; Chiu 2003; David et al. 1994; Finn 1995; Kaplan and Whitecotton 2001; Ponemon 1994; Schultz et al. 1993; Tavakoli et al. 2003). Some deterrents may stem from a combination of organizational and individual characteristics, such as personal and professional cost of whistle-blowing, fear of retaliation, and trust issues (Curtis 2006a; Kaplan and Whitecotton 2001; Ponemon 1994; Schultz et al. 1993). Protections from whistle-blower retaliation are limited (Baynes 2002) and decreasing (Jones 2006; *Wall Street Journal* 2006), which may exacerbate effects of these factors.

Finally, research suggests characteristics of whistle-blower mechanisms that are important in enhancing effectiveness, including clarity of purpose, available channels for reporting, user friendliness, independence from the management of the organization, powers of investigation, reputation for investigating and resolving issues reported, impartiality, competence and fairness, employee familiarity with hotline, and code of ethics requirement that observed unethical acts be reported (Bradlow 2005; Curtis 2006a; Ponemon 1994). Measures that increase the likelihood that employees will use an internal whistle-blower hotline include training (Finn and Lampe 1992, Chiu 2003, Hooks et al. 1994), use of an ombudsperson (King 1999), and frequent reminders by the employer (Curtis 2006a).

While research in other domains documents many potential organizational and individual characteristics relevant to the whistle-blower’s decision to report, it is yet to be determined whether these factors are applicable to public accounting. For example, accountants

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<sup>18</sup> Whistle-blowing is also addressed in ISA 315.

are indoctrinated to consider the confidentiality of the information they possess, which may reduce their propensity to whistle-blow (Loeb and Corey 1989). Additionally, it may be difficult to distinguish ethical dilemmas from professional disagreements. Thus, potential whistle-blowers may be unsure of the appropriate reporting channel (King 1999). King also suggests that highly structured organizations like public accounting firms inhibit whistle-blowing by creating distance between the reporting individual and the department charged with investigating the report. However, as Brennan and Kelly (2007) report, training and a formal structure with clear and proper channels for reporting wrongdoing can reduce an auditor's reticence to blow the whistle.

In sum, the research summarized in this section suggests that whistle-blower mechanisms can be effective, but that effectiveness is impacted by contextual, individual, and organizational factors. Research suggests that effectiveness is enhanced when: the mechanism is designed to ensure confidentiality, even at the expense of the firm's ability to investigate an allegation; employees thoroughly understand the mechanism and firm practices with regard to investigation, through training and frequent reinforcement; and when firm culture and policies both encourage such reporting (e.g., through the firm's code of conduct and training) and discourage retribution for reporting unethical acts. The following research questions are suggested:

- RQ31:** How have accounting firms changed their whistle-blowing policies and training since the passage of SOX? Do employees of those firms consider there to be a "real" difference in support for whistle-blowing?
- RQ32:** What organizational and cultural characteristics common to public accounting firms inhibit or encourage whistle-blowing?
- RQ33:** Are anti-retaliation programs effective at increasing the likelihood of whistle-blowing in the context of public accounting?

### **Risk Management Following the Engagement** *Internal and External Inspections and Review*

Prior research examines the quality control mechanisms of *ex post* review of engagement activity, including within-team review, engagement quality review, and peer review.<sup>19</sup> Over the last twenty years, regulations have shifted *ex post* engagement reviews from voluntary to mandatory and from being conducted by a peer to a regulator, and have increased their frequency. Based on these increasingly stringent requirements, it seems clear that regulators consider engagement reviews and inspections as potential deterrents to lapses in audit quality.

U.S. auditing standards state that firms have the responsibility to implement a system of quality control, broadly defined as a process to provide the firm with reasonable assurance that its personnel comply with applicable professional standards and the firm's own standards of quality (QC 20.03). International Standards on Quality Control (ISQC 1) are more definitive on the issue of review as a quality control mechanism, saying that all firms "should establish policies and procedures, requiring, for appropriate engagements, an engagement quality control review that provides an objective evaluation of the significant judgments made by the engagement team and conclusions reached in formulating the report" (IFAC 2007, ISQC 1, para. 20). This standard requires an engagement quality

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<sup>19</sup> See Schneider and Messier (2006) for a thorough discussion of engagement quality (concurring partner) review. We provide a brief summary here as part of our overall discussion.

review for all audits of listed entities and other assurance engagements according to criteria established by the firm. Moreover, the engagement quality control review must be completed before the audit report is issued. ISQC 1 also requires periodic inspection of selected engagements as part of an ongoing evaluation of a firm's system of quality control. These reviews may be conducted internally or externally, provided the reviewers were not involved in performing the engagement or the engagement quality control review.

Standards of the SEC Practice Section (§1000.39 Appendix E-a) note that engagement quality review is an integral part of a firm's system of quality control. Again, ISA are more detailed, prescribing that the engagement partner should: "(a) determine that an engagement quality control reviewer has been appointed; (b) discuss significant matters arising during the audit engagement, including those identified during the engagement quality control review, with the engagement quality control reviewer; and (c) not issue the auditor's report until the completion of the engagement quality control review" (ISA 220, para. 36).

We discuss research on the following topics within the general area of audit review: (1) internal engagement quality reviews (i.e., second or "concurring partner" reviews), (2) external peer reviews, and (3) quality control reviews and inspections by regulators.

### **Internal Engagement Quality Control Reviews**

In general, extant research indicates that engagement quality control reviews reduce audit risk through a variety of means. Engagement quality reviews improve audit risk assessment judgments (Ayers and Kaplan 2003; Tucker and Matsumura 1997), induce engagement partners to plan higher levels of audit testing (Matsumura and Tucker 1995), and reduce the tendency to focus more on confirmatory than on disconfirmatory evidence (Tan 1995). A few studies reveal how these reviews might be improved. In an experimental study, Favere-Marchesi and Emby (2005) found that new engagement quality review partners made better judgments than continuing partners did. This finding supports mandatory rotation of concurring partners, consistent with SOX Section 203. Epps and Messier (2005) find that concurring partner review performance improves when a detailed review instrument is introduced earlier rather than later in the experimental task. In an archival study, Luehlfling et al. (1995) find that partner experience is positively associated with the number of hours spent on engagement quality review, but this only holds for two of the three large firms included in their study.

To some extent, the literature on reviews conducted within the engagement is informative to the engagement quality review process. Reviewers with industry experience, for example, are more likely to detect errors (Owhoso et al. 2002). There is a tendency for average quality reviewers to be unduly influenced by their perception of quality of the preparer, which is not evident among high quality reviewers (Tan and Jamal 2001). However, perceived preparer risk (i.e., quality of the preparer) appears to influence review effort less than client risk (Asare et al. 2007). The review approach itself also matters. All-encompassing reviews are more likely to detect errors and are more efficient than focused specialized reviews (Bamber and Ramsay 1997; Bamber and Ramsay 2000; Agoglia et al. 2003). Moreover, face-to-face reviews are more effective than electronic review because preparers produce higher quality working papers when anticipating a face-to-face review (Brazel et al. 2004; Agoglia et al. 2005). In addition, more emphasis is placed on preparer conclusions when a balanced, neutral tone is used instead of a stylized justification approach (Tan and Jackson 2001). Finally, reviewers have a higher propensity to detect errors in audits of high-risk clients (Asare et al. 2005). It is likely that these research findings can be carried over to assist regulators and firms in improving *ex post* engagement quality control review.

This review of the literature suggests the following research question:

- RQ34:** How do engagement quality review procedures differ between public and private company clients?
- RQ35:** International and U.S. auditing standards differ in specificity regarding engagement quality review. Do practices vary significantly across national boundaries? If so, are these differences associated with variation in review efficiency and/or effectiveness?
- RQ36:** Few studies compare engagement quality review practices across firms. Does the variation in factors associated with review effort, found in the 1990s, persist today? If so, what are its causes? Possibilities include firm policies regarding partner rotation, amount of reviewer experience and training, or degree of detail expected in review.
- RQ37:** Do specific practices used in engagement quality review differ across firms or among partners within firms? If so, does review quality vary with these practices?

### Peer Reviews

Conceptually, a high-quality external peer review program should improve audit quality. As a matter of policy, participation in a quality peer review process represents a commitment to quality by the audit firm (Johnstone et al. 2001). Indeed, a survey of audit firm managing partners found that they view such programs as cost-beneficial (McCabe et al. 1993). Moreover, audit firms receiving negative peer reviews are more likely to lose clients (Gilles and Lennox 2005). This implies that the public at large views this process as important. The consequences associated with a negative peer review suggest that the review process provides an incentive to conduct a quality audit and, thus, helps deter the audit firm from allowing aggressive client financial reporting practices (Shafer et al. 1999). While little is known about how the characteristics of peer reviewers themselves affect the review, there is evidence that peer reviews conducted by competitor firms are more likely to produce negative outcomes (Gilles and Lennox 2005). Their findings suggest that a peer review is best conducted by firms with similar clientele and business environment to that of the reviewed firm, but further research is needed to obtain a better understanding of how various peer reviewer attributes affect the quality of the peer review.

A couple of studies examine the association between peer review and audit quality. Archival studies demonstrate that audit firms participating in a peer review process conduct higher quality audits (Deis and Giroux 1992; O'Keefe et al. 1994), and audit quality tends to improve over time for firms that continue to participate in a peer review program (Colbert and O'Keefe 1995). However, research is lacking on the extent to which peer reviews detect all important problems in reviewed engagements. Regarding the ways in which peer reviews are conducted, an experimental study by Emby et al. (2002) shows hindsight bias when reviewers are faced with a negative outcome. This result suggests that brainstorming techniques might improve detection rates.

The literature cited in this section suggests the following research questions:

- RQ38:** What characteristics of individual peer reviewers and of peer review teams are associated with the quality of peer review (i.e., detection of all important problems)?

**RQ39:** An experimental study detects hindsight bias in peer review. What techniques (e.g., brainstorming) could improve the quality of peer reviews?

### **Regulatory Quality Control Reviews and Inspections**

Because mandatory inspection by regulators in the private sector is relatively new, most of the research in this area comes from the public sector, where such inspections have been common since the passage of the Single Audit Act of 1986. These studies analyze outcomes of inspections conducted by either a state agency, the U.S. Government Accountability Office (GAO), or a regional inspector general's (RIG) office. Government regulators conduct "desk reviews" and "quality control reviews" (QCR). Desk reviews are conducted on the audit report filed with the regulating agency, and focus on the report's compliance with applicable standards. A QCR is more thorough than a desk review, involving a site visit to the audit firm's office to examine engagement workpapers and other materials to evaluate compliance with professional standards for fieldwork and reporting. In some ways, desk reviews are similar to SEC reviews and QCR inspections are similar to PCAOB inspections. Consequently, lacking similar archival studies in the private sector, public sector studies provide much of what is known about the effectiveness of regulatory inspections on audit quality.

Using data from nearly 1,000 desk reviews conducted by the California State Controller's Office in 1986 on independent school district audit reports, O'Keefe et al. (1994) find that industry specialization and membership in the AICPA's Division of Firms is associated with higher audit quality (e.g., less violations of reporting standards). Since such membership involves participation in periodic peer reviews, a positive link between peer reviews and engagement audit quality is noteworthy. Colbert and O'Keefe (1995) examine nearly 1,700 desk reviews conducted over a ten-year period (1978–1987) by the Oregon State Board of Public Accounting. They observe that audit reporting quality improved over time, in particular after the state board began imposing stiffer sanctions for substandard reporting. They also find that small audit firms are more likely to violate reporting standards.

In the late 1980s, the Audit Division of the Texas Education Agency (TEA) conducted in-depth QCR inspections at audit firm offices similar to those now conducted by the PCAOB of its registered firms. Examining these inspections, Deis and Giroux (1992) find higher quality audits conducted by industry specialists and by audit firms participating in the AICPA's Division of Firms. This finding is consistent with desk review results reported by O'Keefe et al. (1994).

Typically, audit firms tend to view government audits as low risk and governmental agencies consider the audit fee as the primary factor in awarding the audit. Hence, more than in the private sector, there is a tendency for long-term/low-fee relationships to dominate the public sector audit market. This dynamic, combined with the absence of an involved ownership interest, creates the widespread perception that government audits are of low quality. Brown and Raghunandan (1995) find evidence to support this notion. They compare the quality of public company audits to governmental audits using data from the AICPA's SEC Practice Section peer reviews and RIG quality control reviews. The main result is that, for audits performed by independent public accounting firms, governmental audits contain more significant deficiencies than public company audits (21 versus 2.3 percent). Competitive bidding and other procurement practices can lead to improvements in audit quality, as shown by Copley and Doucet (1993a). Contract provisions are also associated with audit quality. For example, Copley and Doucet (1993b) report that fixed fee contracts are associated with substandard audits and that those contracts with legal remedies for contract violations are associated with higher quality audits. Similar analysis

could be performed on public company audits using PCAOB inspection results as a measure of audit quality. The following research questions follow from prior literature cited in this section:

- RQ40:** Will PCAOB inspections result in higher audit quality over time, thereby leading to fewer financial statement frauds and/or restatements?
- RQ41:** What characteristics comprise the quality of individual public company audits as defined by a PCAOB inspection, and how often are violations of these characteristics reported?
- RQ42:** What expectations does the investing public have of PCAOB inspections of audit firms? Are these expectations being met under the current inspection regime?
- RQ43:** Among public sector audit inspections, long-term/low-fee relationships are found to be of lower audit quality. Do these findings translate to the audits of public and private companies?

#### **COSTS AND BENEFITS OF AFQC STANDARDS FOR SMALLER AUDIT FIRMS**

The issue of whether quality control and other standards should be applied equally to small and large audit firms is an important current concern of regulators. This issue will gain in importance as public companies that are not accelerated filers (which tend to be audited by smaller firms) begin complying with SOX Section 404. While universal application of standards might result in quality improvement among all audit firms regardless of firm size, small firms are likely to be less able to bear the associated costs.<sup>20</sup> There are indications that the current regulatory environment is squeezing out smaller CPA firms, thereby increasing industry concentration. SEC Chairman Cox has commented on the undesirability of intense concentration in the audit supply market (Burns, 2005). NASDAQ CEO Greifeld (2006) expresses concern that increasing regulation may force small issuing companies to delist. Moreover, a GAO (2003a) study suggests that small accounting firms face significant barriers to entry into the public company audit market.<sup>21</sup> To investigate this issue, Read et al. (2004) interviewed partners at small audit firms that resigned as a PCAOB registered firm. They find that increased oversight, liability insurance costs, and scrutiny were primary reasons for the resignations.

Existing quality control standards recognize cost/benefit considerations by allowing firm size to play a role in determining procedures used. For instance, U.S. auditing standards state that a firm should prepare appropriate documentation to demonstrate compliance with

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<sup>20</sup> Recently, the PCAOB issued Auditing Standard No. 5 (PCAOB 2007), which supersedes Auditing Standards No. 2, on audits of internal controls. The new standard may reduce costs by allowing the auditor to tailor internal control audits to fit the size, complexity, and risk characteristics of the company.

<sup>21</sup> The realignment of the market for audit services is one notable post-SOX phenomenon. In an analysis of auditor changes between 2002 and 2004, GAO (2006) found that nearly 70 percent of companies formerly audited by one of the Big 4 switched to a smaller audit firm, due to a combination of increasing cost and the constrained access to services from large public accounting firms. In addition, large public accounting firms cited the propensity for higher client risk and lower profitability in the small public company audit market as a factor in their resignation as auditor (GAO 2006, 47). While the number of public companies audited by smaller public accounting firms rose to 30 percent in 2004, these companies represent only 2 percent of total public company revenues. Thus, it is easy to understate the importance of this shift in the market for audit services. Perhaps the recent spectacular failures of several large public companies have clouded the reality that small companies are more susceptible to failure.

its policies and procedures for the quality control system. However, the form and content of such documentation depends on a number of factors, including firm size, the number of offices, the degree of authority allowed its personnel and its offices, the nature and complexity of the firm's practice, and its organization (QC 20.25). Similarly, ISQC 1 prescribes that the nature and extent of a firm's quality control policies and procedures depend on a number of factors, such as size and nature of its practice, its geographic dispersion, its organization, and appropriate cost/benefit considerations.

Along similar lines, QC 30.10 notes that in small firms with a limited number of management-level individuals, monitoring procedures may need to be performed by individuals who are also responsible for compliance with the firm's quality control policies and procedures. Thus, a separation of duties problem arises. To effectively monitor one's own compliance with the firm's policies and procedures, an individual must be able to critically review his or her own performance, assess his or her own strengths and weaknesses, and maintain an attitude of continual improvement. Changes in conditions and in the environment within the firm (such as obtaining clients in an industry not previously serviced or significantly changing the size of the firm) may indicate the need to have quality control policies and procedures monitored by another qualified individual. Accordingly, a firm in this circumstance may need to engage a qualified individual from outside the firm to perform inspection procedures (QC 30.11).<sup>22</sup>

While current auditing standards allow variation by firm size, the academic literature generally concludes that audit quality is lower among smaller firms.<sup>23</sup> In an extensive review of the literature on this topic, Watkins et al. (2004) consider both the perception of audit quality (i.e., auditor reputation or credibility) and actual audit quality (monitoring strength). They conclude that research generally finds that "brand name" audit firms have greater credibility in the financial markets, and provide greater monitoring strength. Francis (2004) notes that studies of audit pricing show a premium charged by "brand name" audit firms, which could indicate either more thorough audits or greater pricing power. He also cites studies showing that clients of larger audit firms have fewer lawsuits and SEC sanctions than those of smaller audit firms, and have higher earnings quality. While there is a large body of research supporting these conclusions, there remains a concern that research has difficulty distinguishing the effects of audit firm size from the characteristics of the client base of those firms (e.g., Francis 2004, 354).

Some research on the specific topics covered in this paper also considers the association of audit quality with firm size. For example, data from peer review and regulatory inspections indicates that audit quality is positively associated with audit firm size and the number of prior reviews conducted (Colbert and Murray 1998). The latter finding suggests that audit quality may improve as a result of implementing recommendations from the peer review.<sup>24</sup> Colbert and O'Keefe (1995) find that small audit firms were more likely to violate reporting state reporting standards. In addition, Carey and Simnett (2005) find that evidence

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<sup>22</sup> SAS No. 108 (Planning and Supervision, AU 311.17) describes some possible advantages of audits conducted by small audit firms on small entities. The standard indicates that coordination and communication between audit team members is easier in audits of small entities where, for example, the audit engagement partner may be a sole proprietor working with a few audit team members.

<sup>23</sup> Due to our space limitations and the availability of recent reviews by Francis (2004) and Watkins et al. (2004), we present only a brief summary of the literature on audit firm size. We recommend both papers to readers who are interested in expositions that are more complete on this issue.

<sup>24</sup> However, a survey of partners in small CPA firms (fewer than five professional staff) finds that they believe that peer review programs are not cost-effective, and favor longer review cycles for firms in receipt of "clean" reviews (Ehlen and Welker, 1996). This implies resistance on the part of smaller firms to further regulation of this nature.

of auditor independence problems associated with long tenure is confined to non-Big 6 firms.

Given these research findings, the trend for small companies to retain smaller audit firms raises questions about the future rate of failure of small public companies. Smaller firms are less likely to have adequate separation of duties (e.g., between engagement partners and those charged with promoting quality control), central research units, and quality-enhancing technologies such as electronic decision aids. Thus, whether small accounting firms have the requisite in-house skills and resources to perform public company audits under SOX is an area of concern. However, one point of view is that a match of company size and needs with audit firm size and capabilities represents an effective combination of quality and service value (American Assembly 2005; GAO 2006, 51–52; Grant Thornton 2005). Further, the practitioner literature suggests that inter-firm alliances may help promote audit quality at smaller firms (Chilton 1974; Gamal 2002; Glickman 2000; Shamis 2003; Zitzmann 1976), as well as choice of a larger “big brother” firm (Shamis 2003). However, we are not aware of research addressing the effectiveness of these mechanisms in improving quality control among smaller firms.

In sum, while there is likely to be greater resistance to higher quality control standards among smaller firms, research shows that audit quality concerns are greater for smaller firms and that large firms are currently passing smaller and riskier clients to them. Consequently, there is a concern about the ability of small accounting firms to meet the audit quality standards required by SOX. Champions for small accounting firms suggest that these firms can adopt strategies, like creating alliances, to allow them to meet this challenge. Alternatively, small accounting firms might become niche providers of certain services (e.g., SOX 404 testing). The following research questions are suggested:

- RQ44:** How does participation in an alliance affect the quality of audits conducted by small firm members compared to other small firms not in an alliance?
- RQ45:** How does a client’s switch from a large accounting firm to a smaller accounting firm affect audit quality?
- RQ46:** To what extent is PCAOB registration used as a quality signal by small firms? What is the audit fee differential for private companies between firms with PCAOB registration and those without?

## CONCLUSIONS

This paper summarizes extant research on the current regulatory environment with regard to risk monitoring and control in audit firms, the methods used by the firms to monitor and control risk, and the effects of these methods on audit quality. This synthesis should be of interest to researchers, doctoral students, and practitioners, due to the interest of the Public Company Accounting Oversight Board (PCAOB) and the audit firms in improving quality control and the relative lack of research on some important relevant issues. This is a broad literature, and within the confines of a single article, we cannot provide great depth of coverage in each of the subtopics within our review. Recognizing this limitation, our goal is to provide some information on all facets of the literature. We note overall conclusions in those instances where research shows a consensus, but more often, we note conflicting findings that are opportunities for further research.

Based on our syntheses of research on quality control mechanisms before, during, and after the engagement, we identify 46 research questions to guide further study. If there is

an overall theme that recurs through this review, it is that much of the research we cite uses data developed prior to The Sarbanes-Oxley Act (SOX) and the founding of the PCAOB. The resulting changes in regulation, audit firm practices and procedures, relationships with clients, etc., likely constitute the greatest shift ever to occur in the auditing profession. Thus, it is very important to replicate prior findings in this new environment, as past findings may not represent the state of the world going forward.

A further point arises from our study of this literature. The continuing ability of research to provide valuable knowledge from study of the auditing industry is enabled by availability of data. To address many of the research questions we pose, researchers will require provision of data and the time of professionals, courtesy of the public accounting firms. Recent regulatory changes have also caused additional information to become public. As an example, the availability of data on nonaudit service fees has enabled a number of studies examining whether provision of nonaudit services (NAS) is associated with the auditor's ability to maintain independence in performing the financial statement. The public interest will ultimately be best served by allowing independent researchers access to data so that important issues of public policy can be addressed.

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