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Audit Quality: Insights from the Academic Literature

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AUDIT QUALITY: INSIGHTS FROM THE ACADEMIC LITERATURE

Summary

This study presents a review of academic research on audit quality. We begin with a review of existing definitions of audit quality and describe general frameworks for establishing audit quality. Next, we summarize research on indicators of audit quality, such as inputs, process, and outcomes. Finally, we offer some suggestions for future research. The study should be useful to academics interested in audit quality as well as to the Public Company Accounting Oversight Board (PCAOB) and other regulators.

Keywords: Audit quality; audit quality indicators; auditor judgment; PCAOB synthesis

AUDIT QUALITY: INSIGHTS FROM THE ACADEMIC LITERATURE

INTRODUCTION

Audit quality is much debated but little understood. Despite more than two decades of research, there remains little consensus about how to define, let alone measure, audit quality. The objective of this study is to review and synthesize the academic literature on audit quality and propose ideas for future research. To start, it is important to note that the perception of audit quality can depend very much on whose eyes one looks through. Users, auditors, regulators and society—all stakeholders in the financial reporting process—may have very different views as to what constitutes audit quality, which will influence the type of indicators one might use to assess audit quality. The user of financial reports may believe that high audit quality means the absence of material misstatements. The auditor conducting the audit may define high audit quality as satisfactorily completing all tasks required by the firm's audit methodology. The audit firm may evaluate a high audit quality as one for which the work can be defended against challenge in an inspection or court of law. Regulators may view a high quality audit as one that is in compliance with professional standards. Finally, society may consider a high quality audit to be one that avoids economic problems for a company or the market. In the end, different views suggest different metrics.

Much like the Hindu parable of the four blind men identifying an elephant from narrow but diverse viewpoints, all these perspectives are correct ... to an extent. But all views are also incomplete.¹ Audit quality reflects a similar challenge, with a significant exception: the observers can see just fine but the focus of attention is hard to define. While it would be ideal to define

¹ The most famous version of this parable in English is captured in the 19th century poem "The Blind Men and the Elephant" by John Godfrey Saxe (1816–1887). One man believed he was touching a tree (leg), another a wall (chest), a third a snake (trunk), and a fourth a spear (tusk). The story appears in different forms in many cultures from the Mideast through Asia with variations in the number of blind men involved.

audit quality for what it “is,” the reality is that researchers, regulators and professionals can often do no more than describe what high audit quality “is not,” i.e., in terms of errors or deficiencies that reduce audit quality.²

To reconcile different viewpoints, and to begin to understand what the absence of high quality may look like, we first adopt a theoretical frame through which we can view the notion of audit quality. This framework will help to identify the fundamental characteristics against which the quality of an audit can be discussed. For the purpose of this paper, we shall start with a general observation: An audit is a professional service delivered by experts in response to economic and regulatory demand. Expanding on this rather obvious statement, we can identify a number of characteristics that could influence audit quality (refer to Knechel 2010):

- An audit is an economically motivated response to risk, i.e., *incentives* matter.
- The output of an audit is a report but the *outcome* is uncertain and unobservable. While audit quality might be generally believed to be high or low, it is not possible to “know” the residual risk of an engagement (achieved assurance level), i.e., *uncertainty* matters.³
- Each engagement is different. The idiosyncratic nature of an audit arises due to variations in client characteristics, audit teams, timing of work, and assessed risk and procedures used, i.e., *uniqueness* matters.
- The audit is a systematic activity, i.e., *process* matters.
- The execution of the audit process depends on appropriately leveraging the knowledge and skills of experts, i.e., *professional judgment* matters.

As we will show below, audit quality depends on how these fundamental characteristics manifest in any given engagement. For example, if the outcome of an audit is considered to be

² In this sense, the difficulties encountered in trying to define audit quality are similar to those related to defining auditor independence. While there is a general “understanding” of what independence means, many definitions adopt a negative perspective by focusing on a lack of independence, rather than a positive focus which would emphasize what independence is. The problem arises because it is much easier to observe when independence is lacking and very difficult to observe when independence is present, i.e., an absence of impairments to independence is not the same as actually being independent.

³ The audit risk model embeds the assumption that the outcome of the audit is not zero risk (or perfect assurance).

unobservable, it is difficult to define audit quality in terms of an achieved outcome.⁴ In contrast, the audit *process* is observable but the idiosyncrasies of the client means that professional judgment is used to decide how the systematic process should be applied. A broader issue is whether the systematic process is even appropriate. We will explore these issues in more detail as we discuss the extant literature on audit quality later in the paper.

The paper makes several contributions to existing research. First, we develop a framework for synthesizing and understanding research related to audit quality. The framework includes linkages across the primary attributes of the audit (incentives, uniqueness, process, uncertainty and judgment) and among the different aspects of the audit—inputs, process, outcomes and context. Thus, we use a “balanced scorecard” approach to understanding audit quality. Second, we extend the work of Francis (2011) in several important ways by presenting a comprehensive review of the academic literature on audit quality.⁵ While Francis (2011) takes a supply-side perspective and focuses on archival-based audit research, we include a broader perspective by also including behavioral, experimental, and survey method research.⁶ Third, in the spirit of advancing our knowledge about audit quality, we offer many suggestions for future research for both the primary attributes of the audit as well as the different aspects of the audit. Therefore, this study should be useful to academic researchers, practitioners, regulators, investors, and others who are interested in understanding audit quality.

⁴ Not all audit literature is in agreement on this point. Traditionally, much of the economic theory of auditing has treated an audit as an experience good, something for which quality can be observed after purchase (e.g., the quality of a restaurant meal). More recent theoretical work has raised the possibility that the audit is a credence good, something for which quality can only be observed at a prohibitive cost (e.g., the quality of a car repair). See Causholli and Knechel (2012a) for a more complete explanation of the distinction between experience and credence goods.

⁵ The Francis (2011) paper was not intended to provide a comprehensive review of the literature but rather provided examples of different approaches to research on audit quality. Rather, Francis’ objective was to illustrate different approaches to conducting research on audit quality.

⁶ We also include international research on audit quality, whereas, the Francis (2011) paper limits his attention to papers published in North American journals.

The remainder of this paper is organized as follows: In the next section we will review the existing definitions of audit quality and, where possible, reconcile the many different perspectives that exist on audit quality. In the third section, we discuss general frameworks for establishing audit quality. The fourth section examines potential measures of audit quality including measures of audit inputs, process, outcomes and the context of the audit. In the fifth section, we offer some suggestions for future research and conclude with a summary section.

EXISTING DEFINITIONS OF AUDIT QUALITY

The problem of audit quality being in the “eye of the beholder” is reflected in the broad range of diverse, and sometimes divergent, definitions that have been offered by numerous authorities and individuals over the past 20 years.⁷ We review some of the definitions below to highlight the current diversity.

From early on, audit quality has been defined as an outcome conditional on the presence of certain attributes of auditors. The widely used definition by DeAngelo (1981, 186) defines audit quality as “the market assessed joint probability that a given auditor will both discover a breach in a client’s accounting system, and report the breach.” This definition is often interpreted to break down audit quality into two components: (1) the likelihood that an auditor discovers existing misstatements and (2) appropriately acts on the discovery. The first component links to an auditor’s competence and level of effort while the latter relates to an auditor’s objectivity, professional skepticism and independence. These two components also suggest that different

⁷ As a result, several regulators and standard setters seem to have reached the conclusion that arriving at consensus on a definition of audit quality may be impossible. For instance, the Financial Reporting Council (FRC 2006, 16) state “there is no single agreed definition of audit quality that can be used as a ‘standard’ against which actual performance can be assessed.” In the Consultation Report of International Organization of Securities Commissions (IOSCO 2009, 3), a similar sentiment is expressed in that audit quality is difficult to define and is specific to the stakeholder and consensus difficult to achieve.

aspects of the audit can influence overall audit quality. The discovery of a misstatement requires that appropriate resources be effectively utilized in the audit process (i.e., inputs and process) while reporting a misstatement requires an auditor to take appropriate action given the current context at the end of the audit (i.e., output and context). The following problems arise from this definition, however: (1) it has not been reconciled with the audit risk model which is used to guide the audit and reflects the *auditor's* perceptions and (2) the perception of market participants can be erroneous. Despite this limitation, the [DeAngelo \(1981\)](#) definition of audit quality identifies two important components of audit quality.

There are a number of definitions of audit quality in the literature that reference the responsibilities of the auditor in terms of the audit process or the goal of the audit. For instance, the Government Accountability Office (GAO 2003, 13) defines audit quality as one performed “in accordance with Generally Accepted Auditing Standards (GAAS) to provide reasonable assurance that the audited financial statements and related disclosures are (1) presented in accordance with Generally Accepted Accounting Principles (GAAP) and (2) are not materially misstated whether due to errors or fraud.” Material deviations from the standards are presumed to reflect poor audit quality. This view is consistent with the practitioner literature as well (e.g., Tie 1999; Krishnan and Schauer 2001). Other practitioners focus on error detection and the financial statement outcome, suggesting that a high-quality auditor will detect errors in reported earnings and enhance the reliability of the financial statements (e.g., [Chan and Wong 2002](#); [Gul et al. 2002](#); [Behn et al. 2008](#); [Chang et al. 2009](#)). Further, others indicate that audit quality is directly linked to the amount of audit work ([Carcello et al. 2002](#)). Even with these varying views, a common link is the idea that audit quality exists on a continuum where more is assumed to be better than less.

Finally, some researchers focus on defining “poor audit quality” by identifying adverse outcomes from an audit (e.g., [Peecher and Piercey 2008](#)). Defining audit quality in terms of failure is appealing because it is easy to operationalize the definition. However, while Casterella et al. (2009, 716) state, “...we believe poor audit quality is observable with hindsight if an engagement results in litigation or a claim of malpractice against the audit firm,” there are relatively few cases of detectable audit failures (see Francis 2011). In summary, there is currently no unified definition of audit quality. As a result, developing a framework may be the best alternative to gauge overall audit quality.

GENERAL FRAMEWORKS FOR ESTABLISHING AUDIT QUALITY

The first formal attempt to develop an audit quality framework was undertaken by the U.K.’s Financial Reporting Council (FRC) in 2006.⁸ After extensive consultation, the FRC (2008) identified five drivers of audit quality: (1) the culture within an audit firm; (2) the skills and personal qualities of audit partners and staff; (3) the effectiveness of the audit process; (4) the reliability and usefulness of audit reporting; and (5) factors outside the control of auditors affecting audit quality (see Figure 1). For each driver, the FRC identified several potential indicators of audit quality. For example, some of the indicators of the culture of an audit firm include: creating an environment where achieving high quality is valued, nurtured, and rewarded; ensuring partners and staff have sufficient time and resources to deal with difficult issues; and ensuring robust systems for client acceptance and continuation. Other examples pertain to the

⁸ Subsequent examples of audit quality frameworks were developed by the Australian Treasury (Commonwealth of Australia 2010) and the International Auditing and Assurance Standards Board (IAASB 2011). The former proposed a framework for managing audit quality sustainability. The IAASB (2011) discussed audit quality from the perspective of an investor as well as a member of the audit committee and noted that audit quality is influenced by input factors (auditor attributes), outputs (auditor’s report) and contextual factors (laws and regulations).

effectiveness of the audit process in a firm: the design of audit methodology and tools, the availability of technical support, and the enforcement of ethical and independence standards.

[Insert Figure 1 About here]

Recently, [Francis \(2011\)](#) proposed a framework (see Table 1) for understanding and researching audit quality. He notes that audit quality is a complex concept and there are gradations of audit quality across a continuum. Based on a structural view of the audit environment as reflected through different paradigms of archival research, [Francis \(2011\)](#) argues that audit quality is influenced by six levels of analysis that range from a granular view of the audit process to a very broad view of the outcomes of the audit, including (1) audit inputs, (2) audit processes, (3) accounting firms, (4) audit industry and audit markets, (5) institutions, and (6) economic consequences of audit outcomes. The different levels of analysis illustrate how audit quality reflects the cascading of conditions at different levels of the overall system.

[Insert Table 1 About here]

The various frameworks for audit quality highlight that the evaluation of audit quality is a multi-dimensional challenge from both a theoretical and practical perspective. If one crosses Francis' levels of audit quality with the theoretical attributes of an audit mentioned earlier, the complexity of the problem becomes apparent. For each level in the Francis framework, the issues of incentives, outcomes, uniqueness, process and judgment manifest in different ways. For example, at each level, different participants—auditor, team, firm, regulator—may have different and potentially conflicting incentives. Further, the nature of the process at each level varies, while the outcome of each level inherently feeds into the next higher level of analysis, i.e., individual auditor decisions aggregate into a process, processes aggregate into an engagement, engagements aggregate into a firm, etc. Depending upon the level at which an observer sits the

nature of necessary judgment will vary. Given this obvious complexity combined with the difficulty of defining audit quality from various viewpoints, we believe a “balanced scorecard” for auditing might provide a way in which to simultaneously address different stakeholder viewpoints. A scorecard allows stakeholders to focus on the indicators of audit quality that are most relevant rather than imposing a fixed structure for a “generalist” stakeholder.

INDICATORS OF AUDIT QUALITY

We organize our discussion of quality indicators around a “balanced scorecard” with four categories: inputs, process, outcomes and context. This allows us to link the general attributes of audit quality—incentives, uncertainty, uniqueness, process and judgment—more directly to the existing research on audit quality.⁹ First, the *inputs* to an audit are primarily reflected in the individual characteristics of the audit team such as professional skepticism, knowledge and expertise. Second, audit quality is influenced by the characteristics inherent to the audit *process*, e.g., risk assessment, analytical procedures, and workpaper review, etc. The uniqueness of each engagement is apparent in these process indicators due to variations across clients in business plans, transactions, management incentives, risks and controls. Third, we consider relevant *outcomes* which may be reflected in various observable characteristics, e.g., restatements, financial reporting quality, accuracy of audit reports, and results of regulatory reviews. Finally, we examine indicators associated with the *context* of the audit, including the existence of abnormal audit fees, audit tenure, audit partner compensation, and audit fee premiums, all of which may influence auditor incentives. Overall, the indicators included in a scorecard include

⁹ Though there are important differences between our audit quality framework and Francis (2011), we note that “inputs”, “process”, and “outcomes” in Figure 2 are similar, respectively, to “audit inputs”, “audit process”, and “economic consequences of audit outcomes” in Table 1. While Francis (2011) describes how audit research can be conducted at each of the three levels, our objective is to describe the causal relations among inputs, process, and outcomes. Other elements in Francis (2011), i.e., “accounting firms”, “audit industry and audit markets” and “institutions” are subsumed in our framework under “context”.

both financial (e.g., restatements) and non-financial measures (e.g., auditor expertise). Further, links across the phases of the audit suggest that improvements in one area can result in improvements in other areas, e.g., more training and recruitment of talented employees would enhance audit processes which in turn would have a favorable impact on audit outcomes.¹⁰

[Insert Figure 2 About here]

Inputs

A presumption of the audit risk model which drives audit planning and evidence gathering is that the riskiness (i.e., uncertainty) of each client is unique (i.e., idiosyncratic). The riskiness of a client is dependent on the complexity of transactions and accounting systems in place and can be influenced by management's incentives to produce reliable financial statements. As a result, the resources needed to obtain "reasonable assurance" vary across engagements. An audit is a knowledge-based *professional service* producing an uncertain and unobservable outcome. Consequently, the resources needed for an audit depend on the personnel available for an engagement, the abilities and expertise of the audit team, and the audit technology and methodology being used. Thus, it is important to realize that inputs of audit quality cannot be defined in strictly quantitative terms as would be the case in a process that produces a large volume of nearly identical tangible products. The idiosyncratic nature of the audit process means that an auditor's effort level needs to be tailored to each client within the structure of the basic audit methodology as applied by the audit team using their best judgment. The ability to make sound judgments directly influences the quality of the audit so the better the personnel, the better the outcome of the audit is likely to be. However, to understand the quality of judgment it is

¹⁰ For a similar overview of audit quality framework see Arrunada (2000). The focus of Arrunada, however, is narrower focusing on how audit quality attributes interact with regulation.

important also to understand the nature of incentives and cognition in the audit process and how they relate to the inherent uncertainty and idiosyncrasies of the engagement.

Incentives and Motivation

Experimental research has documented that auditor judgments can be impacted by incentives which, in turn, can negatively or positively influence the quality of the audit process. Specifically, the quality of auditor judgments has been found to be adversely impacted by the perceived risk of client loss (e.g., [Farmer et al. 1987](#); [Blay 2005](#)); fee pressure (e.g., Houston 1999; Gramling 1999), client retention incentives (e.g., Lord 1992; Trompeter 1994; Chang and Hwang 2003), economic benefits contingent on specific actions (e.g., Schatzberg and Sevcik 1994; Beeler and Hunton 2002), and other client-related and engagement pressures (e.g., Hackenbrack and Nelson 1996; Haynes et al. 1998; Jenkins and Haynes 2003; Kadous et al. 2003; Blay 2005). However, there are several countervailing incentives in place, such as concerns for regulatory enforcement, potential litigation costs, and potential reputation losses, promoting high audit quality (e.g., Nelson 2009). In general, it is believed that incentives lead to preferences for a desired outcome which unintentionally influence one's decisions, in a self-serving manner (e.g., [Kunda 1990](#); [Russo et al. 2000](#)).

Professional Skepticism

Existing research has documented a positive relation between professional skepticism and audit quality ([Chen et al. 2009](#)). Specifically, auditors who exercise higher levels of professional skepticism are more likely to confront a client or perform additional procedures when high risk irregularities arise ([Shaub and Lawrence 1996](#)), are more likely to detect fraud ([Bernardi 1994](#)), exhibit high quality assessments of evidence ([Hurtt et al. 2008](#)), and are less trusting of a client, and more likely to invest in high levels of audit effort ([Bowlin et al. 2012](#)). Several dispositional

and situational factors directly influence an auditor's professional skepticism ([Nelson 2009](#)). For example, auditor actions consistent with higher levels of professional skepticism are positively associated with the following dispositional traits: ethical development and moral reasoning (e.g., Bernardi 1994; Shaub and Lawrence 1996; Sweeny and Roberts 1997; Brown-Liburd et al. 2009), professional identification ([Aranya et al. 1981](#); [Bamber and Iyer 2007](#)), conservatism (Brown-Liburd et al. 2009), and trait skepticism ([Hurtt et al. 2008](#)).¹¹ Interestingly, Shaub (1996) finds that an auditor's experience with a client (i.e., tenure and history of client accuracy) and other situational factors (e.g., risk of misstatement and the quality of communication) are stronger determinants of an auditors' level of professional skepticism than are dispositional factors including individual traits.

Knowledge and Expertise

Auditor knowledge and expertise has a direct bearing on the quality of the audit. Domain-specific knowledge (e.g., knowledge accumulated through client, task, and industry experience) is associated with higher quality auditor judgment (e.g., Bonner 1990) and is necessary for developing auditing expertise (e.g., [Frederick and Libby 1986](#); [Bedard 1989](#); [Bonner and Lewis 1990](#)). For example, auditors with more domain-specific knowledge make decisions that are more consistent with professional standards and have a higher consensus level (e.g., Bedard 1989). Likewise, the level of auditor's client-specific knowledge has been found to be positively related to auditor performance over time (e.g., [Beck and Wu 2006](#)). Finally, an auditor's industry expertise has been found to be positively related to the quality of audits. Auditors with industry specialization have been found to outperform non-specialists in error detection (Owhoso et al.

¹¹ Trait skepticism is defined as a multi-dimensional construct which includes the following characteristics: a questioning mind, a suspension of judgment, a search for knowledge, interpersonal understanding, self-esteem, and autonomy (Hurtt 2010).

2002), in performing analytical procedures ([Wright and Wright 1997](#); [Green 2008](#)), in assessing components of audit risks (Taylor 2000; Low 2004; Hammersley 2006; Maroney and Simnett 2009), and in disclosing internal control deficiencies ([Rose-Green et al. 2011](#); [Stephens 2011](#)). Similarly, empirical evidence documents that industry experience is positively associated with compliance with Generally Accepted Auditing Standards ([O’Keefe et al. 1994](#)) and that clients with higher levels of industry experience have lower abnormal accruals (Reichelt and Wang 2010).

Within-Firm Pressures

The quality of an auditor’s judgment is also influenced by pressures emanating from the firm itself. These pressures can arise from immediate supervisors on the audit team or the overall evaluation process used by the firm. For example, audit managers held accountable to a partner who aggressively tries to grow the firm’s business are more likely to support bidding on a client who engages in aggressive accounting practices ([Cohen and Trompeter 1998](#)). Likewise, audit managers who perceive audit partners to value efficiency as compared to effectiveness may rely on questionable work by an internal auditor to a greater extent ([Gramling 1999](#)) and engage in less skeptical behaviors during audit testing ([Brown et al. 1999](#)). Finally, research also finds auditors’ perceived goals of the audit ([Sweeney and McGarry 2011](#)) and perceptions of how the audit firm values them ([Herrbach 2001](#)) influences auditors’ judgments.

Empirical research has also documented that time budget and time deadline pressures adversely impact the quality of audits (see DeZoort and Lord 1997 for review). Time budget pressures have been found to result in tradeoffs of audit effectiveness for audit efficiency ([McDaniel 1990](#)) and to increase the likelihood of engaging in “reduced audit quality acts” such as under-reporting of time (e.g., [Lightner et al. 1982](#); [Kelley and Margheim 1990](#); Ponemon

1992) and prematurely signing off on audit workpapers (e.g., Alderman and Detrick 1982; Kelley and Margheim 1990; Reckers et al. 1997).

Summary of Inputs

The quality of an audit is greatly influenced by the level of inputs into the audit process. In general, improvements in inputs should lead to improvements in other indicators of audit quality (i.e., outcomes). Due to the riskiness of audits and the idiosyncratic nature of audit engagements, the inputs required to effectively carry out an audit engagement may vary substantially across audit engagements. Accordingly, there is no prescriptive level of inputs designed to yield a desired level of auditor assurance; rather, the level of inputs is qualitative and based on auditor's professional judgment. In general, literature suggests that increases in the quality of inputs, such as applied levels of professional skepticism as well as auditor knowledge and expertise, increase the quality of auditor judgments. However, client-related incentives, such as client retention and within-firm economic pressures can threaten the quality of auditor judgments and thus audit quality.

Process

An audit consists of a number of phases. In a very general sense this includes risk assessment, internal control evaluation, testing, and review. The quality of the audit depends on the quality of auditor judgments during all stages of the audit; therefore, we first discuss audit quality issues related to professional judgment and then explore specific aspects of the audit process in more detail. When applicable, for each aspect of the audit process, we highlight some of the common factors that may threaten audit quality.

Judgment in the Audit Process

Research in auditing has shown that auditors are subject to many of the same heuristics and biases that cause systematic errors in judgment that are observed in general decision making settings. Most notably, auditors have been found to be susceptible to two common heuristics: anchoring and adjustment and representativeness (Tversky and Kahneman 1974; see Smith and Kida 1991 for a review). For example, auditors tend to focus on an initial condition (e.g., unaudited book values) but then insufficiently adjust from that value to arrive at a judgment (e.g., account balance expectation) (Kinney and Uecker 1982; Biggs and Wild 1985). The use of heuristics is not always damaging, however. Simple judgment heuristics can be efficient and sometimes effective, i.e., when the use of more complex judgment strategies may provide little improvement in auditor decisions ([Thorngate 1980](#); [Kleinmuntz 1985](#); [Paquette and Kida 1988](#)). Auditors are found to be least susceptible to biases when they have an appropriate level of expertise and familiarity with the task ([Smith and Kida 1991](#)). Accordingly, the importance of matching the appropriate level of auditor experience and expertise is critical.

Systematic biases in auditor judgment also can occur as a result of knowledge of certain information (e.g., the “curse of knowledge,” hindsight, and outcome biases). For example, knowledge of client-recorded book values may bias auditors’ expectations of analytical review procedures ([Kinney and Uecker 1982](#); [Biggs and Wild 1985](#); [Heintz and White 1989](#); [McDaniel and Kinney 1995](#)); subsequent outcome knowledge may bias auditor evaluations of client conditions ([Buchman 1985](#); [Reimers and Butler 1992](#); [Kennedy 1995](#); [Emby et al. 2002](#)), and knowledge of management’s internal control assessments may bias auditors’ internal control evaluations ([Earley et al. 2008](#); [Kaplan et al. 2008](#)). Other cognitive biases that may harm audit quality include recency ([Asare 1992](#)), framing ([Emby 1994](#); [Emby and Finley 1997](#)), dilution ([Hackenbrack 1992](#); [Glover 1997](#); [Hoffman and Patton 1997](#)), and escalation of commitment

([Church 1991](#); [Jeffrey 1992](#)). While the biases can negatively impact the quality of auditor judgments, in many cases researchers have also identified factors that mitigate the biases including experience ([Jeffrey 1992](#); [Kennedy 1993](#); [Messier and Tubbs 1994](#); [Trotman and Wright 1996](#)), restructuring a task ([Earley et al. 2008](#)), accountability ([Kennedy 1993](#); [Cushing and Ahlawat 1996](#)), and varying the timing of audit evidence ([Favere-Marchesi 2006](#)).

Audit Production

A number of studies have examined the nature of the audit production process and the factors that influence it. Most notably, the degree of client complexity and risk significantly influence audit production in terms of (a) the planned extent or hours of testing ([O’Keefe et al. 1994](#); [Caramanis and Lennox 2011](#); [Calderon et al. 2012](#)), (b) the nature of planned testing ([Hackenbrack and Knechel 1997](#)), and (c) the personnel assigned to the audit ([Johnstone and Bedard 2001](#)). For example, the acceptance of higher risk clients is facilitated by employing the use of audit staff with greater expertise ([Johnstone and Bedard 2001](#)) and auditor specialists ([Johnstone and Bedard 2003](#)). In addition to client risk, audit production is also influenced by earnings manipulation, corporate governance ([Johnstone and Bedard 2004](#)), disclosure policies ([Krishnan and Sengupta 2011](#)), auditor business risk ([Bell et al. 2008](#); [Houston et al. 1999](#)), and the audit firm’s political risk ([Redmayne et al. 2010](#)). Research further shows that induced reductions in auditor effort, not necessarily supported by underlying client characteristics, adversely affect audit quality. For example, time pressures during busy season are associated with lower earnings quality ([Lambert et al. 2011](#); [Lopez and Peters 2012](#)).

The overall conclusion of these papers is that auditors adjust their production plan in response to increased risk factors (e.g., increase effort or utilize more experienced/expert audit staff). Yet, the total amount of labor hours and labor mix may not be a sufficient indicator of

audit quality by itself. What may be more important is the interaction of various circumstances within a client such as tight deadlines, the structure of the audit team, and the presence or absence of other services.¹² In fact, it is possible for auditors to work a lot of hours and still not produce a desirable level of audit quality.¹³

Assessing Risk

As discussed, auditor risk assessments are important because they determine the nature, extent and timing of planned procedures.¹⁴ In this section, we note a few factors have been found to impair the quality of auditor risk assessments. First, the approach auditors use to assess risks can result in different assessments (Jiambalvo and Waller 1984; Zimbelman 1997; O'Donnell and Schultz 2003; Wilks and Zimbelman 2004). For example, experimental studies find that fraud risk assessments tend to be understated when auditors use holistic approaches as compared to an approach that separately assesses the risks of fraud for different components (Zimbelman 1997; Wilks and Zimbelman 2004). Second, experimental studies suggest that auditors have a difficult time properly modifying the planned audit procedures in responses to risk assessments (Zimbelman 1997; Glover et al. 2000; Glover et al. 2003; Hammersley et al. 2011). Third, performing a strategic risk assessment of the client's business model as a first step for assessing

¹² This goes to a more specific point that audit hours per se are not necessarily indicative of bad or good audit quality; more important is the notion of *how* these hours are spent. For example, to reduce busy season work, some accounting firms do a large portion of audit work prior to the actual year end (i.e., interim work). Then, during the actual busy season, their focus is on whether there have been any significant changes in a client financial position since the interim work was completed. By itself, such an approach does not imply bad or good audit quality. What matters is whether it is appropriate for that particular client to achieve a desired level of audit quality.

¹³ Because a client does not observe actual quality of the auditor's work product (i.e., audits are credence goods), auditors could under-audit and earn rents from the excessive fees they charge, given the level of their work product (Causholli et al. 2012). Moreover, Francis and Michas (2012) show that financial restatements tend to concentrate in particular audit offices, suggesting that audit quality is not necessarily just a function of effort level.

¹⁴ Interested readers can also refer to Allen et al. (2006), a synthesis of the literature that provides insights on issues and proposed changes to the auditor risk assessment process.

risk (i.e., as required by audit methodology) has been linked to unintended consequences on subsequent auditor risk assessments ([O'Donnell and Schultz 2003](#)).¹⁵

Analytical procedures

Analytical procedures are an integral component of the audit process and greatly benefit risk assessments made by the auditor. In this section, we describe several factors that threaten the quality of auditor judgments when performing analytical procedures. First, a host of studies examine “interference effects” whereby thinking about or inheriting certain information (e.g., an incorrect non-error explanation) inhibits auditors’ abilities to consider alternatives (e.g., an actual error) ([e.g., see Koonce 1993 and Messier et al. 2012](#) for reviews). More specifically, an auditor’s ability to generate hypotheses for significant differences can be negatively influenced by information provided by management ([Peecher 1996; Bierstaker et al. 1999](#)); explanations provided by other auditors ([Church and Schneider 1993; Yip-Ow and Tan 2000](#)); and other relevant information that causes interference effects ([Anderson et al. 1992; Heiman-Hoffman et al. 1995; Bierstaker et al. 1999](#)). When developing an expectation, an auditor’s knowledge of the client’s book value can reduce the accuracy of auditor expectations ([Kinney and Uecker 1982; Biggs and Wild 1985; McDaniel and Kinney 1995](#)). Further, when evaluating explanations, auditors sometimes fail to sufficiently attend to source credibility ([Anderson et al. 1994; Bernardi 1994; Hirst 1994](#)). Finally, during the evaluation process, auditors fail to dig deeper when information is consistent with their expectations rather inconsistent ([Earley 2002](#)) and tend to rely more on analytical procedures that result in favorable outcomes, i.e., an expectation that is not significantly different from the unaudited numbers ([Glover et al. 2005](#)).

¹⁵ Specifically, O'Donnell and Schultz (2003) find that auditors who developed favorable strategic risk assessments were less likely to subsequently adjust account-level risk assessments for inconsistent fluctuations as compared to auditors who did not perform initial strategic risk assessments.

Obtaining and Evaluating Audit Evidence

The audit process for an engagement is dictated by the firm's audit methodology which can vary from firm to firm. An audit methodology is specifically designed to help an audit team cope with the uncertainty in an audit in a systematic manner. More specifically, audit support systems enable the audit process and enforce the audit firm's methodology. However, aspects of standard audit programs and decision support systems can restrict an auditor's decision process, potentially reducing the quality of auditor judgments ([Dowling and Leech 2007](#)). For example, decision aids and standardized checklists could potentially reduce auditor performance by causing auditors to over-rely on the recommendations of the aids when professional judgment is required ([Pincus 1989](#); [Ashton 1990](#); [Arnold and Sutton 1998](#); [Asare and Wright 2004](#)).¹⁶ Due to the iterative nature of an audit (and across audits), auditors may fail to adequately consider the idiosyncrasies of a specific engagement. For example, auditor judgments often exhibit contrast effects whereby the performance of one task unduly influences performance on another task ([O'Reilly et al. 2004](#); [Bhattacharjee et al. 2007](#)).

Inherent uncertainty in the audit process and the application of accounting principles compounds the judgment challenges an auditor faces. Unknown future events and subjectivity in standards serve to heighten an auditor's uncertainty about the appropriate accounting treatment of a transaction. For example, subjective probability phrases lead to lower levels of consensus among auditors ([Amer et al. 1994](#)) and systematic errors in judgments ([Amer et al. 1995](#)). Further, prior experimental research finds that incentives can influence the quality of auditor judgments when auditors face uncertainty resulting from (1) imprecise accounting standards ([Nelson and Kinney 1997](#); [Nelson et al. 2002](#); [Nelson et al. 2003](#)); (2) mixed accounting

¹⁶ See Nelson and Tan (2005) and Dowling and Leech (2007) for reviews on the limitations of decision aids.

precedents (Salterio 1996; Salterio and Koonce 1997); and (3) subjectivity in accounting standards ([Hackenbrack and Nelson 1996](#); [Braun 2001](#); [Hronsky and Houghton 2001](#)).

Further, auditors also face uncertainty about the materiality of misstatements. Materiality assessments require complex, subjective judgments and estimates, opening the door to errors and biases. For example, auditors tend to underestimate the effect of known errors when projecting to the population ([Burgstahler and Jiambalvo 1986](#); [Dusenbury et al. 1994](#); [Burgstahler et al. 2000](#)). Materiality assessments are also influenced by incentives as auditors are more likely to waive a quantitatively immaterial misstatement that would result in the client missing an earnings target as compared to one that doesn't (Libby and Kinney 2000; Ng 2007; Ng and Tan 2007).

Auditor-Client Negotiations

As part of the audit process, auditors negotiate with their client to produce the resulting financial statements ([Antle and Nalebuff 1991](#)). Auditor-client negotiations are influenced by several contextual features including external conditions and constraints (e.g., GAAP, GAAS), interpersonal factors (e.g., auditor-client relationship, incentives), auditor characteristics (e.g., accounting expertise, negotiation experience), client characteristics (e.g., inherent risk), and other environmental factors (e.g., litigation risk, regulatory environment) ([Gibbins et al. 2001](#); see [Brown and Wright 2008](#) for a more complete review). For example, negotiation experience has been shown to improve the auditor's negotiation performance, leading to more successful outcomes and reduced influence of the client's preferred position ([Johnstone et al. 2002](#); [Brown and Johnstone 2009](#)). Likewise, higher levels of audit rank—partners compared to managers—tend to take a tougher stance against aggressive client-positions during negotiations ([Trotman et al. 2009](#)). On the other hand, experimental and survey evidence suggest that clients have a more favorable negotiation position when the audit firm has a shorter tenure ([Iyer and Rama 2004](#)), a

client's board is perceived as less conservative ([Beattie et al. 2004](#)), and contentious issues arise late in the financial reporting process ([Beattie et al. 2004](#)). Finally, the outcome reached can be significantly influence by an auditor's and client's negotiation strategies ([Gibbins et al. 2001, 2005, 2010](#); [Ng and Tan 2003](#); [Bame-Aldred and Kida 2007](#); [Sanchez et al. 2007](#); [Hatfield et al. 2008](#)), negotiation timing ([Tan and Trotman 2010](#)), and the amount of negotiation concessions ([Ng and Tan 2003](#); [Trotman et al. 2005](#); [Bame-Aldred and Kida 2007](#); [Sanchez et al. 2007](#); [Hatfield et al. 2008](#)).

Review and Quality Control

Much research demonstrates the positive effects of a good quality control and review processes on audit quality.¹⁷ However, a few studies identify some aspects of the review and quality control process that can lead to unintentional, negative effects on the quality of auditor judgments. First, auditor judgments are often biased when auditors are made aware of the reviewer's preferences prior to performing auditing tasks, i.e., biased in favor of the reviewers' preferences ([Peecher 1996](#); [Turner 2001](#); [Wilks 2002](#); [Shankar and Tan 2006](#)). Second, [Messier et al. \(2008\)](#) show partners tend to be over-confident in predicting the abilities of their subordinates which can adversely affect staffing decisions. Others show that reviewer judgments of a preparer's work can be biased by the preparer's performance reputation ([Tan and Jamal 2001](#)) and by the congruency with their own initial opinions ([Tan and Shankar 2010](#)). However, higher levels of audit review, including concurring partner reviews, help to reduce these biases ([Ayers and Kaplan 2003](#); [Woods and Jacobs 2010](#)). Finally, the medium by which a review is conducted (electronic versus face-to-face) ([Brazel et al. 2004](#); [Agoglia et al. 2010](#)) and the

¹⁷ See [Epps and Messier \(2007\)](#) and [Schneider and Messier \(2007\)](#) for reviews related to engagement quality reviews, i.e., concurring partner reviews. See [Bedard et al. \(2008\)](#) for a review of firm-level risk monitoring and control, e.g., client acceptance/continuance procedures, independence, consultation units, etc.

timeliness of reviews ([Lambert and Agoglia 2011](#)) are found to influence the quality of audit work.

Summary of Process

An audit is a systematic process that varies across audit engagements due to idiosyncrasies of the client (e.g., variations in business plans, management incentives, risks, etc.). Therefore, the quality of the audit process is dependent on the quality of auditor judgments during each phase of the audit process, e.g., when assessing risks, performing analytical procedures, obtaining and evaluating audit evidence. Because of large amounts of uncertainty both during the audit process and in audit outcomes, auditors' judgments are susceptible to individual cognitive biases. In our review, we focus on common factors and biases that have been found to threaten audit quality when making professional judgments during the different audit processes. We also recognize that the audit process has steps in place designed to mitigate the effects of individual errors in judgments such as review and quality control processes.

Outcomes

The literature has traditionally viewed the presence of higher audit quality in terms of lacking certain negative outcomes (such as restatements or litigation) or having certain positive outcomes (such as issuing going concern opinions when merited). We discuss these outcome measures in turn.¹⁸

Adverse Outcomes

¹⁸ One potential limitation of this approach is that it focuses on extreme events (e.g. restatements) which could be rare, and may not be representative of a more holistic state of audit quality. In addition, some outcome measures suffer from potentially strong measurement error (e.g. discretionary accruals), and audit quality measures in question may have internal validity limitations (such as use of market share as a proxy for audit quality which may actually capture a firm's attitudes towards growth that results in the firm accepting riskier clients).

A common indicator used to proxy for negative audit quality is the presence of an accounting restatement. Although sample size for the analysis of restatements is generally small (Francis 2004), prior research shows that higher levels of audit quality are associated with a lower likelihood of accounting restatements. For example the presence of restatements is negatively associated with various proxies for audit quality including auditor industry expertise (Romanus et al. 2008; Chin and Chi 2009), auditor tenure (Stanley and DeZoort 2007), and aggregate audit team experience (Li and Chen 2011). Moreover, the occurrence of restatements is negatively associated with the ratifications of auditor selection by shareholders (Liu et al. 2009), and small auditors are more likely to be dismissed by their clients following the discovery of egregious restatements (Hennes et al. 2012).¹⁹

Another potential adverse outcome suggesting negative audit quality is litigation against an auditor. Empirical work during the 1990's examined auditor litigation extensively (see Palmrose 1998). Prior literature identifies several key findings in this area. First, auditors can only be sued when there is very strong evidence of financial statement fraud, i.e., auditors were negligent in their audits and did not follow GAAS (Fuerman 2006). Second, auditors are named in a small number of class-action lawsuits initiated under securities law. Finally, a majority of lawsuits against auditors are settled out of court and settlement amounts are often confidential. In general auditors contribute a small percentage to the overall settlements (Palmrose 1997). Fuerman (2012) shows that tendency to sue auditors and the amount of settlement awards has decreased in the period after the passage of the Sarbanes Oxley Act. Given these findings, auditor litigation as a measure of audit quality is somewhat limited.

Financial Reporting Quality

¹⁹ Literature distinguishes between irregularities and errors when it comes to restatements. Irregularities tend to be more egregious restatements which are much more likely to be intentional, i.e., fraudulent.

Another common way to examine audit quality is to consider the overall quality of financial reporting or earnings quality ([Behn et al. 2008](#)). Given that no comprehensive or generally accepted measure of earnings quality exists, researchers have examined various dimensions of earnings quality such as neutrality (proxied by discretionary accruals measuring deviation of accruals from a certain norm), feedback value or earnings “credibility” (the association between earnings and market returns), and earnings conservatism. A limitation of this line of research is that one cannot easily separate audit quality from the quality of financial reporting standards ([Knechel 2009](#)). We discuss the two most common proxies examined in the literature: discretionary accruals and accounting conservatism.

In general, research has shown a negative relation between the level of discretionary accruals in total, or income-increasing accruals alone, and proxies for audit quality including Big N auditors ([Francis et al. 1999](#); [Kim et al. 2003](#)), auditor specialization ([Krishnan 2003b](#); [Balsam et al. 2003](#)), auditor tenure ([Myers et al. 2003](#)) and audit office size ([Francis and Yu 2009](#)). Further, Francis and Michas (2012) find higher levels of clients’ discretionary accruals for auditors whose offices have had a higher incidence of past restatements, suggesting that history of past audit failure is associated with a higher likelihood of future earnings management. It is, however, unclear whether discretionary accruals are an appropriate earnings quality proxy since they are already heavily scrutinized by auditors ([Schelleman and Knechel 2010](#)).

While it is widely debated as to whether accounting conservatism is a desired proxy for the quality of accounting information, research suggests that higher levels of accounting conservatism are associated with proxies for audit quality.²⁰ For example, accounting conservatism is negatively associated with auditor litigation ([DeFond et al. 2012](#)), and

²⁰ See Watts (2003a, 2003b) for a summary of the empirical evidence on conservatism.

positively associated with auditor industry specialization, auditor size (Basu et al. 2000), and longer audit tenure (Jenkins and Velury 2008). Moreover, as a unique example, clients of the Houston office of Arthur Andersen (responsible for the failed Enron audit) exhibited lower levels of conditional conservatism than a control group (Krishnan 2006) and Andersen clients that switched auditors following Andersen's downfall showed increases in conservatism (Krishnan 2007).

Audit Reports

The accuracy of audit reports is often viewed as a signal for audit quality. However, auditor reporting judgments such as issuing going concern opinions have proven to be difficult, resulting in relatively high levels of Type II and Type I errors ([Mutchler 1985](#), 1986; Chen and Church 1992; Carcello and Palmrose 1994; Reynolds and Francis 2000; Geiger and Rama 2006; Church et al. 2008). Carson et al. (2012) synthesize the literature on going-concern reporting. They report that, on average, 40 to 50 percent of bankrupt companies in the U.S. do not receive a prior going concern opinion (i.e., a Type II error) and that 80 to 90 percent of companies receiving a going concern opinion do not enter bankruptcy in the subsequent year (i.e., a Type I error). They also report that going concern reporting errors have changed over time with changes in auditor litigation resulting from the Private Securities Litigation Reform Act (PSLRA) and Sarbanes-Oxley Act (SOX). Finally, much research has also examined users' reactions to going concern reports (e.g., stock market reactions) suggesting that users perceive going concern reports as informative to signaling higher audit quality.

Others argue that the effectiveness of the auditor's report as an indicator of audit quality is limited due to the restricted content of the report, i.e., it is essentially a pass/fail report. In their synthesis of the literature, [Church et al. \(2008\)](#) conclude the auditor's report has symbolic value,

but it provides little communicative value (e.g., the inputs of the auditor's reporting decision are not disclosed). [Mock et al. \(2012\)](#) note that there are limitations related to the current auditor's report because of the "information gap" between auditors and users. Such information includes undisclosed audit information such as materiality, independence, significant audit risks, and the audit partner's name.

In addition, the accuracy of auditors' SOX 404 reports also can signal audit quality. While relatively little research has been performed to date, Rice and Weber (2012) provide some empirical evidence on the effectiveness of SOX 404 reports. For a sample of financial statement restatements (i.e., firms had a material weakness at the time of the misstatement), they find a large number of material weaknesses are unreported in a timely manner (i.e., only 32.4 percent of firms receive an adverse SOX 404 report) and that the proportion has declined over time. The findings suggest that auditor's SOX 404 reports may not be very effective for signaling the quality of internal control over financial reporting or the auditor's ability to compensate for weak internal control, which is a hallmark of the audit risk model.

Regulatory Reviews of Audit Firms

Perhaps the most direct outcomes of audit quality are the results of regulatory reviews of audit firms. For the U.S., this includes self-regulation through peer reviews for all audits prior to SOX, as well as audits of private clients after SOX, and independent inspection by the PCAOB for auditors of public companies after SOX.²¹ The two systems have yielded significantly

²¹ The PCAOB tries to inspect non-U.S. firms that play a role in the U.S. market but has encountered issues with conducting foreign inspections. The PCAOB has established cooperative agreements with several non-U.S. jurisdictions that allow the PCAOB to rely on inspection work performed by a home-country regulator (PCAOB 2010). However, the PCAOB is still prevented from inspecting the U.S.-related audit work of PCAOB-registered firms in certain European countries, China, and Hong Kong. Carcello et al. (2011) find that the market reacted negatively when the PCAOB announced it would not be able to inspect auditors in certain foreign countries suggesting that the market perceives PCAOB inspections as valuable.

different results over time. For peer review, an overwhelming number of reports are unqualified (i.e., “clean” reports) ([Wallace 1991](#)). While this is suggestive of relatively high audit quality, it also may result from an ineffective peer review process ([Fogarty 1996](#); [Anantharaman 2007](#); [DeFond 2010](#)).²² Nonetheless, there is some empirical evidence documenting a positive association between peer review results and audit quality ([Grant et al. 1996](#); [Casterella et al. 2009](#)). Likewise, firms with good peer review reports attract and retain clients ([Hilary and Lennox 2005](#)) and are considered by audit committee members when recommending an auditor ([Woodlock and Claypool 2001](#)).

PCAOB inspections are independent and can impose higher sanctions for poor quality ([Gunny and Zhang 2011](#); [DeFond 2010](#)).²³ However, many argue that the PCAOB inspection results are not valuable for signaling audit quality because the reports do not include an overall evaluative assessment and the quality control deficiencies are often not disclosed ([DeFond 2010](#); [Lennox and Pittman 2010](#)).²⁴ Descriptive analysis of the inspection results for large accounting firms (those with more than 100 public clients) through 2009 indicates firms received approximately 14 auditing deficiencies per year, on average, and that every large firm received quality control criticisms each year. However, none of the criticisms warranted public disclosure because firms made reasonable progress in addressing the criticisms following the report.²⁵

²² Under the AICPA peer review system, audit firms choose their reviewers. [Fogarty \(1996\)](#) and [DeFond \(2010\)](#) argue that because peer reviewers are not independent, the effectiveness of reviews are compromised. Similarly, [Anantharaman \(2007\)](#) provides evidence that accounting firms choosing *friendly* reviewers fare better in peer reviews than other firms.

²³ We note that the PCAOB inspections and reporting processes are similar to those of audit regulators in other countries such as the FRC in the U.K., the CPAB in Canada, and the ASIC in Australia, although there are differences across countries in the manner in which the inspection process is conducted and results are disclosed.

²⁴ For example, [Lennox and Pittman \(2010\)](#) find no association between the PCAOB inspection results and subsequent changes in clients’ audit firm choices. The findings are contrary to those for peer review reports ([Hilary and Lennox 2005](#)).

²⁵ Auditing deficiencies are publicly disclosed in the inspection reports without identifying the client affected. Criticisms of quality control remain confidential provided the firm addresses the quality control defects to the PCAOB Board’s satisfaction within 12 months of the report date ([PCAOB 2006](#)).

Church and Shefchik (2012) note that the number of auditing deficiencies identified, as well as the severity of auditing deficiencies, have significantly decreased over time. While the decrease in auditing deficiencies is consistent with improvements in audit quality, it may simply reflect that firms are better at “managing” the inspection process. For smaller accounting firms (those with fewer than 100 public clients), Hermanson et al. (2007) document a relatively lower average number of auditing deficiencies per inspection (1.6 per report) but a much larger incidence of unremediated (disclosed) quality control criticisms (70 percent). Further, [Bishop et al. \(2012\)](#) provide descriptive analyses on the results of inspections for international firms noting that approximately one half of the inspection reports identify audit deficiencies and two-thirds identify quality control defects.

Researchers are just beginning to examine the effectiveness of the PCAOB inspection process in spite of the empirical challenges.²⁶ Research studies suggest that PCAOB inspections may improve audit quality, especially for small audit firms. Small audit firms with low quality are increasingly likely to exit the market since the inception of the PCAOB ([DeFond and Lennox 2011](#)), are more likely to be dismissed following disclosure of PCAOB inspection deficiencies ([Abbott et al. 2008](#); [Dougherty et al. 2011](#)), are more likely to issue going concern opinions after being inspected ([Gramling et al. 2011](#)), and are more likely to increase audit effort following inspection deficiencies ([Knechel et al. 2012](#)). Further, there is a positive association between inspection results and clients’ earnings quality ([Gunny and Zhang 2011](#)), as well as abnormal market reactions following inspections that reveal audit deficiencies ([Offermanns and Peek 2011](#)) or when there are unremediated quality control deficiencies ([Dee et al. 2011](#)).

²⁶ First, the inspection reports do not identify the issuers inspected. Second, the PCAOB uses a risk-based approach to selecting issuer engagements for review so the sample of issuers is not representative of the population. Third, empirical results from analyzing inspection reports and changes in the overall audit market are confounded with many other changes in the audit market during the same time period.

Summary of Outcomes

The outcome of an audit is uncertain and unobservable. As such, researchers turn to indirect, but measureable, proxies for audit outcomes. Further, they tend to identify what high audit quality “is not” (e.g., errors and deficiencies) rather than what it “is”. The common measures of audit outcomes to proxy for low audit quality include the presence of financial statement restatements, auditor-related litigation, poor financial reporting quality (e.g., presence of abnormal accruals), inaccurate audit reports, and audit deficiencies identified during regulatory reviews. In addition, the presence of going concern reports for financially distressed firms is used as a positive audit quality outcome measure. We note that these measures are indirect and each has their own unique limitations as proxies for audit quality. However, due to the lack of ability to observe audit outcomes, using indirect measures may be the next-best solution.

Context²⁷

Audit Partner Compensation

Currently, there is little evidence documenting a direct link between partner incentives and audit quality. A number of studies, mostly in Australia, have found that there is a positive association between the size of a client—which proxies for revenue opportunity and fees—and audit quality. [Trompeter \(1994\)](#) found that firms with a large profit sharing pool had higher audit quality than firms where profits were shared locally. Using actual tax return data of Swedish audit partners, [Knechel et al. \(2011\)](#) find a negative association between client significance to a

²⁷ In addition to the five factors discussed below, we acknowledge that there are other contextual factors that can impact the audit process and therefore, audit outcomes. For example, laws and regulations governing financial reporting, auditing standards, and investor protection, audit firm governance, and audit firm methodology and technology could impact the audit process.

partner's personal income and wealth and audit quality, proxied by likelihood of issuing a going concern opinion. Thus, some evidence exists suggesting that partner compensation affects audit outcomes.

Abnormal Audit Fees

Researchers have documented that abnormal audit fees, i.e., audit fees much higher than the norm, can be indicative of financial reporting problems within a firm ([Hribar et al. 2010](#)). Further, higher abnormal audit fees are associated with declines in future firm performance (Picconi and Reynolds 2010; Stanley 2011) and a higher cost of capital (Hope et al. 2009). Similarly, Hackenbrack et al. (2011) argue that increases in negotiated audit fees are associated with an increased likelihood of a negative price shock to a firm's stock price.²⁸ On the other hand, both the PCAOB and SEC have expressed concerns over audit fees that are too low which could indicate that an auditor is conducting insufficient work.²⁹ Recent empirical evidence supports this notion and documents a decline in accounting quality subsequent to fee reduction during the global financial crisis ([Ettredge et al. 2011](#); Krishnan and Zhang 2012). The use of abnormal fees as a warning sign for poor audit quality may be problematic for a number of reasons: (1) the audit fee model has not been validated for predictive use, (2) the fee residual is interpreted as being meaningful when it may simply be noise unless the standard error of the prediction is considered, and (3) it creates a "can't win" situation where any deviation from a predicted fee—high or low—is interpreted as "bad."

Non-audit Fees

²⁸ That is, auditors price their private information ex-ante and excess auditor effort or risk premium signals the presence of potential problems. The latter findings should not be interpreted as showing either lack of or presence of high audit quality. Rather, the audit fees' level itself signals negative future bad news to investors.

²⁹ For example, PCAOB Board Member Jay Hanson raised this concern at AICPA conference on PCAOB and SEC developments in the end of 2011. See also <http://jimhamiltonblog.blogspot.com/2011/12/pcaob-member-discusses-fair-value.html>.

One of the major SOX reforms was the prohibition of the provision of most non-audit services to audit clients. The claim is that non-audit services create an economic bond between auditors and clients which impairs independence and threatens audit quality. However, the documented evidence on the potential negative effects of economic bonding arising from auditor-provided non-audit services is mixed. In their synthesis of the literature on the impact of non-audit fees, [Bedard et al. \(2008\)](#) conclude there is a lack of evidence to support the claim that auditor independence is compromised by provision of non-audit services.³⁰ Yet, recent studies continue to add to the mixed results. For instance, recent studies show that abnormal non-audit fees are positively associated with abnormal loan loss provisions of small banks ([Kanagaretnam et al. 2011](#)) and with more negative outcomes of auditor class action litigation ([Schmidt 2012](#)). The latter suggests that these services are negatively viewed by some stakeholders.

On the other side of the debate, some argue that non-audit services are beneficial and improve audit quality. Most notably, non-audit services are thought to have a “knowledge spillover” effect whereby providing non-audit services allows the auditor to develop better expertise about a client and the utilization of that expertise improves the quality of the audit (e.g., Simunic 1984; Lai and Krishnan 2009; Knechel and Sharma 2011; Krishnan and Yu 2011; Svanström and Sundgren 2012). For example, studies indicate that auditor-provided tax services (ATS) are associated with higher financial reporting quality and audit quality (Robinson 2008; Gleason and Mills 2011; Krishnan and Visvanathan 2011).

Audit Fee Premium - Big N Auditors and Industry Specialists

Researchers have investigated whether certain types of auditors are able to command a fee premium that would be consistent with higher quality. Big N auditors have been shown to

³⁰ Earlier studies of NAS also include Frankel et al. (2002), DeFond et al. (2002), Ashbaugh-Skaife et al. (2003), Larcker and Richardson (2004), Lennox (1999), Gul et al. (2006), and Kinney et al. (2004).

earn a fee premium in many countries while simultaneously being associated with superior earnings quality ([Francis et al. 1999](#); [Kim et al. 2003](#); Francis and Wang 2008; Francis and Yu 2009; Rusmin 2010). Similar results have been found with respect to fee premiums for auditors who are industry specialists (Craswell et al. 1995; Seethamaram et al. 2002; Balsam et al. 2003; Ferguson et al. 2003; Krishnan 2003b; Francis et al. 2005; Ferguson et al. 2006; Basioudis and Francis 2007; Carson and Fargher 2007; Choi et al. 2008; and Carson 2009). However, the audit fee premium may also reflect the higher option value of a Big N firm in the event of litigation.³¹ Connected to this stream of research is the emerging evidence that audit partner specialization also has a positive effect on audit quality ([Nagy 2012](#)).

Auditor Tenure

The length of the auditor-client relationship can potentially impact the quality of audits. The well-established debate on the issue revolves around two competing arguments: (1) short tenure means an auditor has less knowledge of a client versus (2) long tenure may mean that an auditor's objectivity is potentially impaired. Research in this area has documented both a positive ([Chen et al. 2008](#); [Chi et al. 2009](#)) and negative ([Carey and Simnett 2006](#)) relation between auditor partner tenure and financial reporting quality. Evidence pertaining to audit firm tenure and earnings quality has been mixed as well. It has been documented that auditor tenure is associated with lower levels of discretionary accruals ([Myers et al. 2003](#); [Johnson et al. 2002](#)) and accrual persistence ([Johnson et al. 2002](#)). [Davis et al. \(2009\)](#) is one of the few studies to find that auditor tenure is associated with *higher* earnings management in both short and long tenure situations but this is only observable prior to the passage of SOX. Further, in short-tenure

³¹ One way to disentangle legal liability effect from quality effect in audit fee premium literature is to do a cross-country study where liability regimes differ. That is, in some jurisdictions lawsuits against auditors are quite rare, and hence any premium that may exist in those countries would be attributable to higher quality. [Choi et al. \(2008\)](#) and [Seethamaram et al. \(2002\)](#) are two examples of such studies.

situations where earnings quality is reduced the presence of an industry specialist moderates the negative effect ([Gul et al. 2009](#)). On the other hand, Boone et al. (2008) find that client's risk premium (cost of equity in excess of risk free rate) increases as auditor tenure increases, implying that markets view auditor tenure as a risk factor.³² A recent meta-analysis of studies in auditing literature identifies auditor tenure, as well as auditor size and specialization, as factors positively affecting accounting quality (Lin and Hwang 2010).

Market Perceptions of Audit Quality

Evidence shows that the market rewards companies that employ better auditors and auditor reputation matters (e.g., Moizer 1997; Skinner and Srinivasan 2012). Clients of Big N or industry specialist auditors enjoy lower costs of debt financing ([Mansi et al., 2004](#); Pittman and Fortin 2004; Fortin and Pittman 2007; Karjalainen 2011; Causholli and Knechel 2012b), lower costs of equity capital ([Khurana and Raman 2004](#); [Azizkhani et al. 2010](#)), higher earnings response coefficients ([Balsam et al. 2003](#); [Ghosh and Moon 2005](#)), and lower levels of IPO under-pricing ([Chang et al. 2008](#)). These results are supported by De Franco et al. (2011) who show that employing a Big 4 auditor is associated with higher proceeds from sales of controlling interests in the U.S private firms. Similarly, Fan and Wong (2005) show that East Asian audit clients with a Big N auditor receive smaller share price discounts when the clients have agency problems. However, not all country level studies find a positive Big 4 effect on accounting quality or associated Big 4 premium (Langendijk 1997; Bauwhede and Willekens 2004). Further, archival evidence shows that the market reacts to discretionary accruals (Subramanyam 1996) and views discretionary accruals more credibly when financial statements are audited by Big N auditors (Krishnan 2003a).

³² This result is consistent with the popular view among some commentators that long audit tenure is bad. For example, Schilit (2009) cites longer auditor tenure as a possible financial "red flag."

Summary of Context

Many contextual features have been found to influence audit quality. We focus on a few factors that are prevalent in the literature (e.g., audit partner compensation, non-audit fees, auditor tenure, etc.). As shown in figure 2, contextual features are thought to directly influence audit inputs (e.g., incentives and pressures) and/or the audit process (e.g., judgments and evidence evaluation) which indirectly influence audit outcomes (e.g., accuracy of audit reports and financial reporting quality). However, because changes to audit inputs and the audit process are generally unobservable, the literature tends to test for associations between contextual features and audit outcomes. We note that there are mixed findings related to the effects on audit quality of many of these contextual features. Further, there are limitations inherent in the research methods used to test context because causal inferences are not easily obtainable. Nonetheless, contextual factors are important to consider because they have significant interactive effects with audit inputs and audit process that ultimately influence the quality of an audit.

FUTURE RESEARCH

In spite of the tremendous amount of research already conducted related to audit quality, there is still much room for future research. Such research could address the primary attributes of the audit—incentives, uniqueness, process, uncertainty and judgment—within the different aspects of the audit—inputs, process, outcomes and context. Because the list of research questions is potentially huge, the examples provided below are designed to spur additional interest in some new areas of audit research.

Research Related to Conducting an Engagement: Inputs and Process

The quality of the inputs to an audit and the audit process itself are difficult to observe externally. Nevertheless, some parties, notably clients, regulators and the auditors themselves can observe what goes on within an engagement. As a result, archival research related to inputs and processes requires access to proprietary data in the possession of insiders, while experimental, survey, and qualitative research requires access to insiders within the audit process (audit team, management, and inspectors). Further, the links between attributes of input, such as professional skepticism and expertise, and the quality of outcomes are difficult to measure. The ambiguous nature of these links may provide a fruitful area for the application of qualitative research techniques. Some research questions that might be addressed related to audit inputs and process include:

- Incentives: How do internal mentoring, training, evaluation, compensation and promotion incentives and policies influence individual auditor decisions and the planning and execution of the audit process? How can negative incentives be realigned or mitigated? Are client scanning procedures used to manage a firm's risk appropriate and effective?
- Process: What are the appropriate metrics for assessing the quality of audit inputs and processes? How do changes in the environment (e.g., increased use of fair value accounting, introduction of principles based standards) influence changes in the audit process? How does technology and standardization impact the quality of the audit process? Are different skill sets needed within an audit team to improve audit quality (i.e., specialists, higher levels of experience)? How does the audit of internal control over financial reporting influence auditor judgment and the audit process? Does the inspection process influence the audit process for better or worse?
- Uniqueness and uncertainty: How does increased uncertainty or ambiguity about client conditions influence individual auditor decisions? Do auditors adequately adjust audit inputs and processes to unique attributes of a client? How does input and process quality link to outcome quality?
- Judgment: How is professional skepticism developed? How does a judgment framework influence actual auditor judgments? Is a judgment framework appropriate? How does technical expertise and skepticism interact?

Research Related to the Completed Audit: Outcomes

There are many characteristics of an audit that can be externally observed after it is completed and the financial statements are released even though the level of assurance (residual audit risk) is generally not observable. Audit reports, financial statements and stakeholder and market reactions can generally be observed upon release of the financial statements. Other outcomes of an audit are not externally observable but are also the result of the audit process, e.g., workpapers and documentation, management letters, reports to the Board, personnel evaluations, to name just a few. A great deal of research has focused on the externally observable manifestations of the audit but very little research has looked at the other products of the audit. Since many of these are internal to a firm, researchers need access to proprietary data or access to firm personnel for surveys and interviews. Some research questions that might be addressed related to audit outcomes include:

- Incentives: How do incentives and wrap-up procedures influence auditor decisions related to the negotiation of audit differences or the form of the audit report? How does firm culture influence auditor reporting decisions? What are the consequences to audit partners of poor decision making? How does the anticipation of inspection influence the finalization of documentation and audit reporting decisions? Does individual partner signing influence the quality of audit reporting decisions?
- Process: What are the appropriate metrics for assessing the quality of audit outcomes? How do drivers of the quality of an audit process link to the externally manifested indicators of the quality of audit outcomes? Does internal and second partner review improve the quality of audit outcomes? How do perceptions of the evaluation process for personnel influence audit quality?
- Uniqueness and uncertainty: Does the audit report adequately reflect the uniqueness of the client and the uncertainty in the environment? Should financial statements be graded or otherwise made more distinctive? Should audit reports be expanded? Should an audit report be used as a source of primary information about a client?³³

³³ Historically, the audit report is used to comment on the fairness of information provided by a client. Recent proposals have suggested that auditors should reveal some of the first-hand knowledge they have about a client which is not covered by financial reporting standards, e.g., business risks, quality of management. Such a requirement would make the auditor a producer of information as well as an assurer of information.

- Judgment: Does inspection influence auditor judgments and decisions? Does a focus on compliance influence auditor judgment and decisions? Does consultation lead to better auditor decisions? Should auditors have alternative communication channels to reveal problems to regulators or government agencies?

Research Related to the Audit Firm: Context

The context of the audit in terms of regulation, audit standards and firm practices has received an extensive amount of attention from researchers because the presumed cause of auditor behavior (i.e., regulation) is easily observable even if the effect is not. Two of the most frequently studied areas of auditing are of interest here: non-audit services and auditor tenure. It is relatively safe to say that, in both cases, the research is mixed and will continue. Another topic that has received extensive attention is the area of audit fees, which are actually a function of many aspects of the audit: the inputs to the audit (factors of production), the audit process, competitiveness of the audit market.³⁴ While much of the research in these areas has utilized public data, future research may benefit from increased use of surveys and qualitative techniques that focus on stakeholders of the audit such as Boards, investors and interested third parties. Some research questions that might be addressed related to the context of the audit include:

- Incentives: What is the appropriate role of the external audit in a system of governance and control? Does the nature of a firm's capital structure influence audit quality (public offerings, debt, and analyst following)? What does audit quality mean to different stakeholders (shareholders, employees, creditors, suppliers, customers, or government entities), and what information about the audit and auditor would they like to have available? Should auditors expand the nature of assurance services that they market and provide to clients? What is the nature and cost of the audit tender process? Should audit firm rotation be mandatory?
- Process: What are the appropriate metrics for assessing the quality of firm and regulatory structures? Why do restatements occur and how are they discovered? Is the audit process influenced when a common auditor serves multiple clients with

³⁴ See Causholli et al. (2010) for overview of audit markets and audit fees.

operational or strategic links (e.g., clients in a supply chain)?³⁵ How are joint audits conducted and are they better than single audits? How do audit standards influence the quality of the audit? Do differences in international and US standards result in differential audit quality (e.g., group audits)? How does audit quality vary over time and business cycles?³⁶

- Uniqueness and uncertainty: Do standards result in over-standardization of the audit process? Does inspection result in over-standardization of the audit process? Do inspectors underweight the uniqueness of individual clients in their evaluations? How do auditors apply rules-based standards to the audit of individual but unique clients?
- Judgment: Is the education, licensing and training of auditors appropriate for the complexity and context of current audits? How does firm advancement and retention policies influence audit quality? Does standardization and an emphasis on workpaper documentation create over-confidence in auditor judgment?

SUMMARY AND CONCLUSION

Auditing is an integral part of the capital markets and audit quality has received much attention in the wake of several high-profile accounting scandals. This paper presents a synthesis of a large body of research on audit quality. We contribute to the literature by providing a framework for synthesizing and understanding research related to the primary attributes of an audit (incentives, uniqueness, process, uncertainty and judgment), as well across the different aspects of the audit (inputs, process, outcomes, and context). This multi-faceted view lends itself to viewing audit quality through a “balanced scorecard”. We augment prior literature related to audit quality frameworks (e.g., Francis 2011) by providing a comprehensive review of the related literature and by adopting a much broader perspective by including archival, behavioral, experimental, and survey method research, as well as including international research.

³⁵ For example, Johnstone et al. (2012) show that employing a common auditor is facilitated by closer supply chain relationships, and, as a consequence, audit quality of members of such supply chains improves.

³⁶ Jenkins et al. (2006) document a decline in earnings quality of client firms of industry specialist auditors in the late 1990’s. Their study suggests that even high quality auditors were unable to prevent the wide spread decline in earning quality of the late 1990’s. See also Leone et al. (2012).

Currently, there is little consensus about how to define audit quality, and the various frameworks and disclosures that exist are incomplete. The range of definitions is quite broad because they focus on different attributes of the audit, such as outcomes, process, and judgments. As a result, stakeholders cannot observe audit quality in its entirety, just the attributes that manifest through the various phases of the audit itself. While regulators demand that audits be conducted in accordance with GAAS, investors and audit committee members may simply demand that audits uncover frauds. Therefore, to consider what matters the most for improving audit quality, it is important to keep in mind the attributes of the audit itself: incentives, uncertainty, uniqueness, process, and judgment.

Research has shown that *incentives* related to auditor tenure, non-audit services, internal firm pressures, and partner compensation can influence auditor decisions in a positive or negative manner. Studies of audit outcomes have shown that *uncertainty* can manifest in potentially negative ways, i.e., levels of accruals, restatements and nature of audit reports. Further, the degree of *uniqueness* has been shown to manifest as variations in risks, controls, audit procedures and evidence. The audit *process* attempts to compensate for the uncertainty and uniqueness an auditor faces but has also been shown to influence audit quality in unforeseen ways. Finally, audit quality is ultimately dependent on the *judgment* of a team of auditors. A great deal of research has pointed to some of the potential causes of auditor errors, as well as providing insight into compensating factors and techniques for mitigating such errors. Nevertheless, virtually every so-called “audit failure” can be traced to an error in judgment—whether unintentional or not—made by the audit team during the course of an engagement.

So what conditions lend themselves to achieving a high quality audit? *In summary, one might conclude that a “good” audit is one where there is execution of a well-designed audit*

process by properly motivated and trained auditors who understand the inherent uncertainty of the audit and appropriately adjust to the unique conditions of the client. In short, all five attributes must be considered when considering whether an audit is high or low quality. It is important to bear in mind that audit quality is a *perceived*, rather than directly *observed*, trait since we can only learn about cases when audit quality is compromised (e.g., through the revelation of fraud). To facilitate stakeholder perceptions about audit quality, we believe that a useful strategy is to develop a “balanced scorecard” that captures the key attributes of auditing. The elements of a scorecard could be populated with appropriately directed research, some of which is already available. For example, prior research documents that some of the factors affecting the perception of audit quality include knowledge of a client, industry experience, audit committee oversight, compliance with auditing standards, audit firm ethics, economic independence of the auditor, rotation of audit partners, and audit inspection ([Beattie et al. 2012](#)). To take the research on audit quality to the next level, researchers need access to new and better data on drivers of audit quality whether it comes from the firms, clients, regulators or other sources. With such information in hand, the scholarly quest for a better understanding of audit quality can continue.

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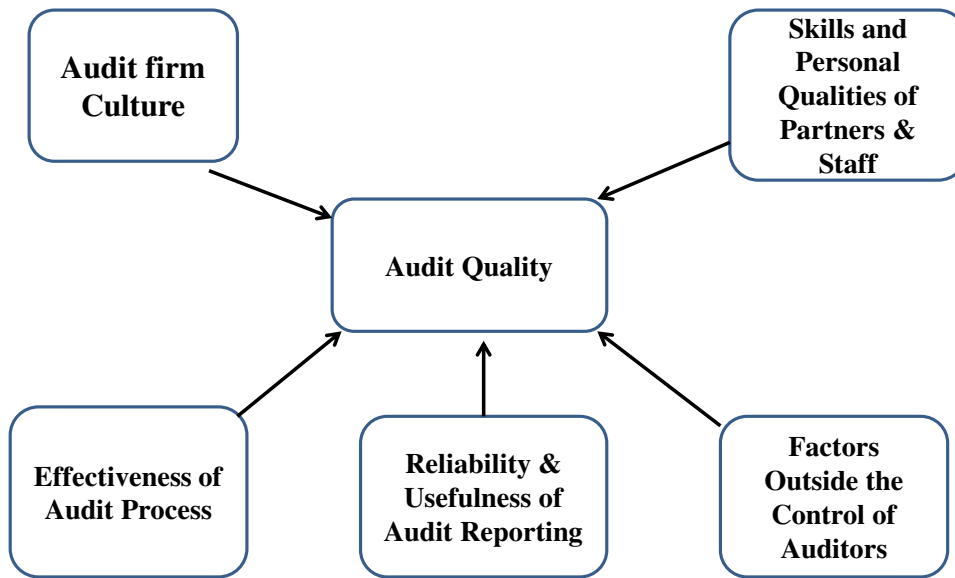
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Figure 1
UK's Financial Reporting Council: Audit Quality Framework (FRC 2008, 1)



Note: The figure above includes key drivers of audit quality as defined the U.K.'s Financial Reporting Council. Interested readers can refer to FRC (2008) for a listing of audit quality indicators specific to each driver.

Figure 2
Indicators of Audit Quality

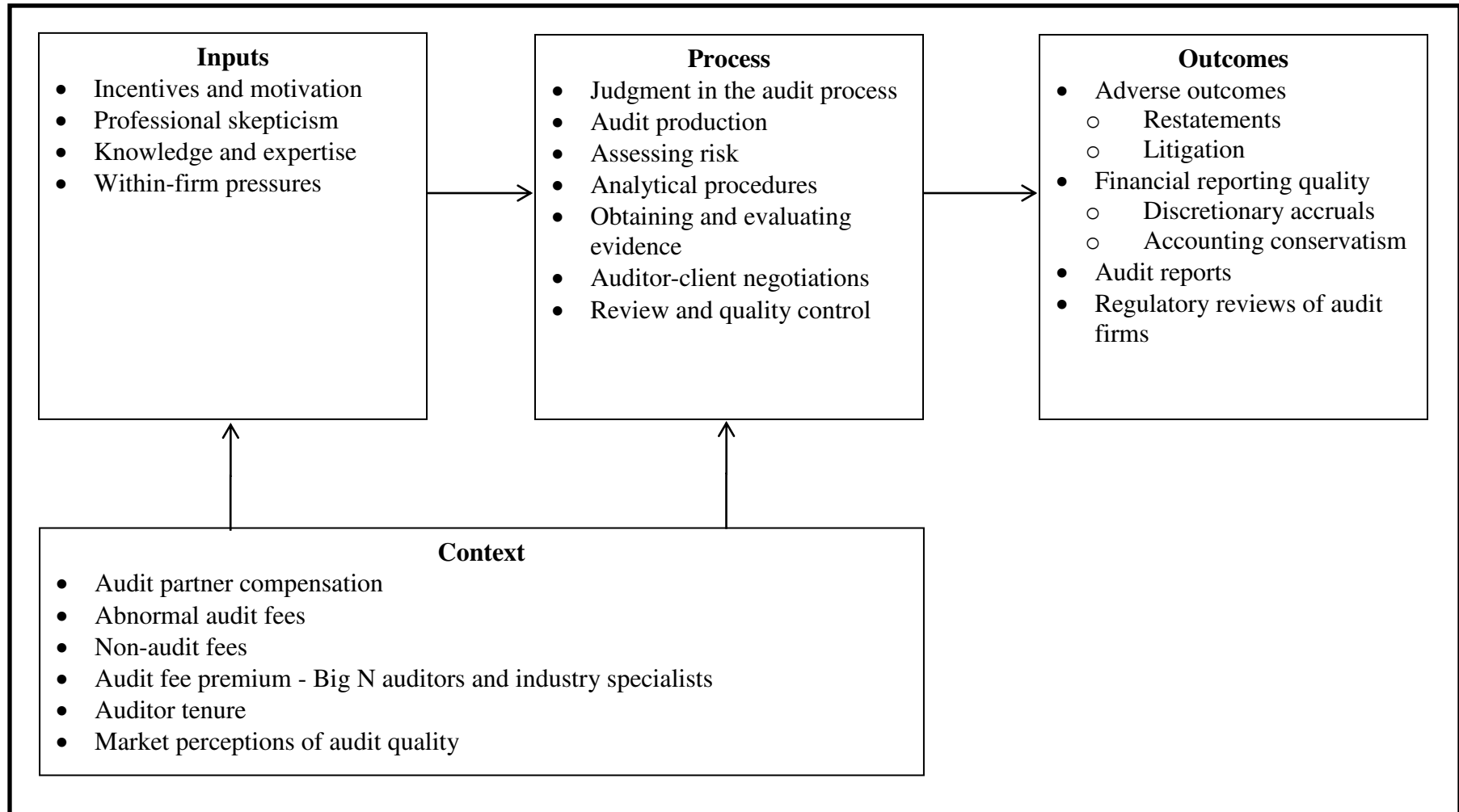


Table 1
Units of Analysis in Audit Research (Francis 2011, 126)

<p>Audit Inputs</p> <ul style="list-style-type: none"> • Audit tests • Engagement team personnel
<p>Audit Process</p> <ul style="list-style-type: none"> • Implementation of audit tests by engagement team personnel
<p>Accounting Firms</p> <ul style="list-style-type: none"> • Engagement teams work in accounting firms • Accounting firms hire, train, and compensate auditors, and develop audit guidance (testing procedures) • Audit reports are issued in name of accounting firms
<p>Audit industry and Audit Markets</p> <ul style="list-style-type: none"> • Accounting firms constitute an industry • Industry structure affects markets and economic behavior
<p>Institutions</p> <ul style="list-style-type: none"> • Institutions affect auditing and incentives for quality
<p>Economic Consequences of Audit Outcomes</p> <ul style="list-style-type: none"> • Audit outcomes affect clients and users of audited accounting information