Audit Firm Culture: Recent Developments and Trends in the Literature

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Abstract

This paper synthesizes research on audit firm culture (AFC) over the past decade, reviewing recent developments in research on factors instilling culture in audit firms, and how culture influences audit quality and auditors' work attitudes. We develop and apply a three-phase model based on prior research (e.g., Schein, 2017) and professional guidance (IAASB, 2014), which maps cultural embedding mechanisms (EMs, visible manifestations and organizational conditions to establish culture), perceptions of existing culture, and consequences of culture. Our synthesis shows that the culture of an audit firm is most oriented toward quality if leadership emphasizes professionalism over commercialism, promotes ethical judgments, and facilitates learning through systems, integration of specialists, and interpersonal interactions among auditors. The research cited shows strong influence on AFC of tone at the top set by leadership, as well as incentives in performance/reward systems. Studies we review generally imply continued concern for the influence of commercialism on AFC, but future research should investigate whether recent forces (i.e., pressure from regulators and efforts by the firms) have caused a cultural shift toward professionalism. We close by suggesting opportunities for future research that can strengthen understanding how AFC can be better managed by firms.

KEYWORDS: Audit firm culture; Audit quality; Audit firm management; Ethical culture; Professionalism; Learning culture

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Audit Firm Culture: Recent Developments and Trends in the Literature

1. Introduction

This paper synthesizes recent research on audit firm culture (AFC) using a theoretically grounded approach, to inform audit firms, regulators, and scholars about the current state of knowledge and to identify future research opportunities. Strengthening AFC has become a key area of attention. Numerous reports of regulators and standard setters (e.g., International Auditing and Assurance Standards Board, IAASB, 2014; Public Company Accounting Oversight Board, PCAOB, 2015; Authority for Financial Markets, AFM, 2017) encourage firms to establish, promote, and embed an appropriate culture and tone at the top to support a high-quality audit, and public oversight bodies are focusing on AFC in their reviews and inspections (e.g., Financial Reporting Council, FRC, 2018; Hamm, 2018). Further, AFC remains an area of academic interest. Many studies have accumulated since the review of the literature on culture in audit firms by Jenkins, Deis, Bedard, and Curtis (2008). Summarizing the findings of extant research can shed light on the current status of AFC and the cultural factors associated with differences in auditors' judgments and decisions that determine audit quality, as well as identify further research opportunities.

Organizational culture encompasses values, beliefs, and assumptions (e.g., Schein, 2017; Hofstede, 1984). Within this broad construct, we focus on core concepts that are embodied in the IAASB's (2014) *Framework for Audit Quality,* which imply that audit firm leadership should implement, through organizational tone at the top, a culture guided by professionalism. Using key terms that address these core concepts (and guided by research in auditing and related disciplines), we searched the literature in relevant high-quality journals over the period 2008-2019. We then reviewed each study to identify those that are empirical and relate to the practice of external auditing, yielding 77 studies that form our sample. To organize and derive meaning from this research, we apply a framework based on Schein (2017), Ehrhart, Schneider, and Macey (2014) and professional/regulatory frameworks of audit quality, depicted schematically in Figure 1. This framework posits that firm leadership implements culture through embedding mechanisms (EMs; i.e., organizational conditions), affecting cultural perceptions and ultimately, consequences for audit quality. Schein (2017) is consistent with IAASB (2014) in identifying

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tone at the top as a core focus of AFC. Other EMs include incentives/rewards, training, resources, organizational design, systems, and procedures.[1] We categorize studies regarding which EMs are examined, how those mechanisms influence perceptions of AFC, and the association of EMs and/or cultural perceptions with auditors' behavior, work attitudes, and/or audit quality.

INSERT FIGURE 1 NEAR HERE

Our structured approach to synthesizing research on AFC contributes to the auditing literature by providing insights on how actions taken by firms combine to form AFC, and consequences of those actions. Our review also contributes to the organizational behavior literature, as auditing research applies theory to organizations with complex multiple levels of leadership, fluid multidisciplinary teams, and competing incentives of professionalism and commercialism. In noting the contribution of our analysis to the literature, we acknowledge another recent related review by Andiola, Downey, and Westermann (2020). While both our paper and theirs focus on broad themes of organizational culture, our paper differs in several ways. First, we synthesize the literature into a formal structure based on theory and audit practice, coding each study on multiple dimensions and presenting tables that display patterns of topics examined in the literature. Through this more structured approach, we arrive at a detailed overview that can be used by firms to identify effective embedding mechanisms and specific research questions for future research to help further develop our model of how firms and individuals formally and informally influence AFC. Second, while Andiola et al. (2020) distinguish between firm culture and climate, we employ an integrative perspective of these concepts.[2] Third, we access a broader range of journals than Andiola et al. (2020), incorporating additional journals with diverse research perspectives and geographical origin.[3]

[1] As our search terms explicitly include tone at the top and leadership, we capture the full range of studies on this core EM in target journals. We further examine our identified studies to detect those studying other EMs identified by Schein (2017) and IAASB (2014). As it is not feasible for a single paper to review all literature on each EM separately, our coverage of EMs other than tone at the top is confined to those studies of the core concepts noted above.

[2] While we include both "culture" and "climate" as key words in our literature search, we most often use "culture" as it best aligns with scholarly work in auditing and the general vocabulary of the auditing profession.

[3] While many cites are common, 29 percent of studies in our three main sections (22 of 77) are published in journals not covered in their paper. Further, the research questions we present are largely distinct from theirs, although a few overlap at a high level.

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This paper is organized as follows. Section 2 provides background and develops our theoretical framework. Section 3 presents methods for identifying and classifying research. Section 4 summarizes findings from sample studies, organized according to three theoretically distinct culture types observed in our sample (professionalism/commercialism, ethical culture, and learning culture), and presents opportunities for future research.[4] Section 5 summarizes pervasive findings across all sections and limitations of our analysis.

2. Background and Theoretical Model

Historically, culture has been viewed as the DNA of the audit firm; i.e., "unique and proprietary, the very essence of the firm" (Jenkins et al., 2008, p. 48). The end of self-regulation of the auditing profession and the unprecedented increase in regulation worldwide (e.g., Sarbanes Oxley (SOX) in 2002; revised 8th European Union Directive in 2006) were the hard consequences triggered by a culture that was considered more revenue-oriented than quality-oriented. More recently, audit firm leaders, standard setters, and oversight bodies point to AFC and tone at the top as the catch-all solution to control auditors' behavior, improve audit quality, and restore public trust in the profession (e.g., IAASB, 2014; International Forum of Independent Audit Regulators, IFIAR, 2015; AFM, 2017). IAASB (2014) notes that AFC influences the values, ethics and attitudes of auditors, as it affects both their mindsets and the way they discharge their responsibilities. Hence, regulators recommend that audit firms develop a clear picture of the AFC they want to realize, aligned with their vision and core values (e.g., AFM, 2017). IAASB (2014) describes key attributes of a culture of audit quality: (1) appropriate tone at the top; (2) appraisal and reward systems supporting audit quality; (3) financial considerations that do not impair audit quality (e.g., budget and time pressure); (4) continuing professional development opportunities and technical support; and (5) a culture of consultation on difficult issues.[5] AFC has also become a recent area of attention in inspections by public oversight bodies (e.g. FRC, 2018; PCAOB, 2018).

[4] Online Appendix A [*URL here*] summarizes the purpose, methods, and results of the identified papers.
[5] Similarly, the International Organization of Securities Commissions (IOSCO, 2018) recommends that audit firms describe initiatives designed to encourage a culture of professional skepticism, including appropriate tone at the top.

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The academic literature defines organizational culture as a pattern of shared basic assumptions, beliefs, and expectations learned by a group through its experience, which guides its members' interpretations and actions and is taught to new members as appropriate behavior within an organization (e.g., Chatman, Caldwell, O'Reilly, & Doerr, 2014; Schein, 2017). Thus, perceptions of organizational culture influence employees' attitudes and behaviors (e.g., Smircich, 1983) and, ultimately, organizational performance (e.g., Hartnell, Ou, Kinicki, Choi, & Karam, 2019). The pattern of cultural cues sent by the web of formal and informal practices, rules, and policies comes to have socially shared meaning (i.e., perceived culture) in the minds of the organization's members, as they observe the behaviors that are rewarded, supported, and expected (e.g., Smircich & Morgan, 1982; Schneider, Ehrhart, & Macey, 2013; Schein, 2017). These observations in turn affect organizational behavior (e.g., Schneider, 1975; Zohar & Hofmann, 2012). But can culture be "managed" to govern professional behavior? While organizational culture and behavior may be emergent properties that cannot be managed (e.g., Meek, 1988), the organizational conditions that leadership sets whereunder they emerge can be managed (e.g., Chatman, 1989; Ehrhart, Schneider, & Macey et al., 2014). Accordingly, as shown in Figure 1, we organize our synthesis around three phases: organizational conditions instituted by management, the cultural environment (assessed through perceptions), and the resulting consequences. This model corresponds to Schein (2017), who refers to cues set by the organization as the "visible artifacts" or (primary and secondary) culture-embedding mechanisms (EMs) through which leaders transmit culture by revealing underlying values. While this paper focuses on AFC, our model acknowledges that organizational culture is influenced by forces outside (macro-cultures) and inside (subcultures) the organization that are beyond management's control (Martin, 2002; Schein, 2017). While a full treatment of these topics is outside the scope of this paper, we supplement our main analysis by briefly summarizing research on macro-cultures and subcultures in online Appendix C [*URL here*].

The first phase includes four "primary" EMs that integrate Schein's (2017) theory with regulatory and professional frameworks of audit quality. First, *tone at the top* established by leadership is the initial key criterion cited by the IAASB (2014) as well as the Center for Audit Quality (CAQ, 2014), justifying its

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position as a "core concept" in our search terms. Second, *incentives/rewards* derives from Schein's criteria by which leaders "allocate rewards and status" and "recruit, select, promote and retire members", and the IAASB's "appraisal and reward systems supporting audit quality." Third, *training/development* comprises Schein's "modeling, teaching, and coaching" and the IAASB's "professional development". Fourth, *resource allocation* is based on Schein's "allocation of scarce resources" and the IAASB's "financial conditions that do not … impair audit quality."[6] Schein's framework also includes secondary EMs that reinforce and formalize values. In our sample, we find studies focusing on secondary EMs of organizational design and structure, and organizational systems and procedures. These EMs are building blocks of AFC (e.g., Schneider et al., 2013); research identifying them might yield specific practices that are more immediately under firm management control (Burke, 2017).

Our model then links these EMs to behavioral consequences and performance that arise from a given culture (e.g., Schneider et al., 2013). Research largely supports a link between culture and performance. For example, Hartnell, Ou, and Kinicki (2011) find that organizations scoring higher on certain typologies of culture are more successful in terms of employee attitudes, and operational and financial performance.[7] Hartnell et al. (2019) show culture's predictive validity for performance relative to other organizational elements and that perceived culture is functionally distinct from EMs such as leadership style and incentives/rewards. Thus, the second phase recognizes studies measuring how individuals perceive their firm's culture, as perceptions are important in determining actions. The third phase identifies studies comparing outcomes (e.g., judgments, decisions, and work attitudes), to investigate EMs and/or cultural perceptions that differentiate more effective organizations. In sum, our theoretical

[6] Thus, *resource allocation* relates to decisions made by firm leaders about how much time and/or budget is allocated to a specific objective or engagement task (e.g., a firm's decision to make a monetary investment in formal training versus allowing for greater time to be spent by auditors engaging in on-the-job learning). In contrast, *incentives/rewards* refer to monetary or other awards provided to individual workers following measurement of their performance.

[7] Despite numerous studies supporting a relationship, there are a few studies drawing contrary inferences. For example, Wilderom, Glunk, and Maslowski (2000) conclude that it is yet to be substantiated and a decade later, Sackmann (2011) notes that there is at best "a contingency-type relationship between culture, performance, and internal and external firm context" (p. 216).

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framework presumes that (perception of) AFC results from EMs (i.e., the pattern of organizational conditions) and in turn informs behavior, resulting in variation in audit performance and quality.

3. Method and Sample Description

We build on Jenkins et al. (2008) by covering articles published from 2008 through 2019. Consistent with our goals of targeting journals with international reach that include a broad variety of methods and topics, we rely on the journal quality index of the Australian Business Deans Council (ABDC). Primarily, we include accounting journals publishing auditing research rated by the ABDC as A* or A.[8] Our search terms include any of the terms ["accounting firm," "audit firm," or "auditing"] in combination with any of the terms ["culture," "climate," "professionalism," "professional identity," "commercialism," "tone at the top," or "leadership"].[9] We identified these key search words based on the Jenkins et al. (2008) literature synthesis and research on culture in auditing, as well as relevant literature in other disciplines, such as management, organizational culture and behavior, and psychology (most notably Schein, 2017). From the initial set of studies identified, we include those meeting several further criteria. First, we include empirical research papers that make or infer a link between EMs and perceptions of AFC and/or its consequences. Second, we include only studies focused on the auditing line of service of audit firms. Third, we include research on audit professionals (not those using only accounting students). Fourth, we narrow our focus to studies including at least Big 4 firms, or a combination of Big 4 and smaller firms, considering that our model recognizes the interplay between firm-level culture and macro-level influences such as global networks and national cultures. We then read each identified study, and classified them into phases

[8] The journals searched are shown in online Appendix B [*URL here*], by number of papers cited in our main sections and method. The ABDC journal list is similar to the American Business Schools Academic Journal Guide. We also searched the *Journal of Business Ethics*, given that journal's interest in topics relevant to our review. We exclude journals on the ABDC list whose focus is primarily tax, managerial or financial accounting. Due to our focus on empirical research, we also exclude the *Journal of Accounting Literature.*

[9] Our identification of relevant research through search terms omits several types of studies; e.g., those that: (1) examine the effect on audit quality of factors not directly related to AFC, and do not propose AFC as a possible reason for findings (e.g., some studies of "contagion" of low audit quality across offices; Francis & Michas, 2013); (2) investigate individual differences as reason for variation in audit quality (e.g., auditor performance affecting the review process; Gimbar, Jenkins, Saucedo, & Wright, 2018); and (3) compare audit procedures, without linking those procedures to culture (e.g., using computer mediation in fraud brainstorming; Lynch, Murthy, & Engle, 2009). We refer readers to more general reviews of the auditing literature (e.g., Lennox, 2014; DeFond & Zhang, 2014; Andiola, 2014) that provide information about studies on each of our topics outside of the core concepts of AFC.

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of our framework in Figure 1 through iterative discussions. To organize our review, we engaged in iterative analysis and discussion of the identified literature on the basis of topics, underlying theory, terminology and citations. This process resulted in three main themes that emerged from our sample studies: (1) professionalism/commercialism; (2) ethical culture; and (3) learning culture.[10]

4. Research on Organizational Culture in Audit Firms

In this section, we synthesize research in our sample on the three primary types of AFC included in the literature: professionalism/commercialism, ethical culture, and the culture of learning. In each subsection, we present a brief summary of research prior to our sample period, and a table summarizing EMs studied, cultural perceptions measured, and/or consequences for auditor behavior or other outcomes. We conclude each subsection with high-level conclusions on the main learnings and provide a table (Table 4) with detailed summary points and future research questions.

4.1. Research on Professionalism/Commercialism in Audit Firms

We first review research examining AFC through the lens of professionalism (oriented toward the fundamental values of auditing focused on serving the public interest) and/or commercialism (oriented toward generating revenues, engagement profitability, and alignment with clients' interests). Historical analyses document economic, regulatory, and social conditions since the mid-1960s that led audit firms to shift from traditional professional values toward a commercial ethos (Wyatt, 2004; Zeff, 2003a, 2003b). Specifically, regulatory restrictions on advertising services were relaxed, and facing saturated local markets and global expansion of businesses, audit firms successively merged into worldwide oligopolies. As these trends developed, concern was voiced about their potential influence, noting the "inherent dilemma" posed by conflicting goals of cost control and audit quality (e.g., McNair, 1991). These shifts in practice were achieved through management controls implemented by leadership; e.g., disciplinary practices and technologies oriented toward achieving commercial goals (e.g., Covaleski, Dirsmith, Heian, & Samuel,

[10] We recognize that these themes are not completely distinct; e.g., ethical behavior in auditing encompasses (but is not limited to) compliance with professional standards. In instances where a study does not clearly align to one of the three themes, we based our classification on studies citing common literature or investigating common outcomes, relative to other studies in one of the three themes.

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1998). For example, studies in this period (e.g., Otley & Pierce, 1996) document the association of budget pressure with quality-threatening behaviors (e.g., premature sign-off and underreporting of time).

In this era when audit services became commodified and consulting fees came to dominate audit fees, pressure on audit partners to cross-sell services intensified. Power (2003) notes in his reflections on "the business of auditing" that the pressures for change in this period were all revenue driven. Gradually, the tone at the top of audit firms shifted from focusing on stakeholder protection, to accommodating clients and promoting client service (e.g., Grey, 1998; Anderson-Gough, Grey, & Robson, 2000; Bamber and Iyer, 2007), eroding barriers between auditing and consulting (Jeppesen, 1998). However, others note reduction in these pressures in later years; e.g., Buchheit, Pasewark, and Strawser (2003).

Jenkins et al. (2008), noting lack of clarity in the literature, ask "whether accounting firms have nurtured cultures which emphasize an appropriate level of professionalism and commitment to serving the public interest" (p. 69). We assess where the literature stands over ten years later, as summarized in Table 1. The identified studies group into three categories; i.e., research on the status of professionalism and commercialism in AFC; the influence of professional versus commercial culture on audit quality and the audit process; and influence on auditors' mindsets and work attitudes.

INSERT TABLE 1 NEAR HERE

4.1.1. The Status of Professionalism/Commercialism in Audit Firm Culture

We first discuss studies on the status of professional and commercial cultures in auditing, summarized in Table 1 Panel A. Gendron and Spira (2009) study the demise of Arthur Andersen (AA) through perceptions of former AA employees. They document a growing commercialistic orientation in the firm through the 1990's, focusing on monetary output and reliance on market control of the organization. Interviewees believe AA's leaders could have prevented this trend through bureaucratic controls (rules and policies) and/or clan controls (shared values and norms). However, instead of implementing professionally oriented controls, AA's leaders focused on commercialistic values, leading to its downfall.

Other studies provide evidence of continuing commercialistic ethos since AA's demise. Sweeney and McGarry (2011) report that audit seniors perceive partners focus on profits over other goals (i.e., audit

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quality, client and staff satisfaction) that are publicly expressed to clients and prospective employees. Carter and Spence (2014) find that "economic capital" of successful professionals predominates over other capitals (e.g., cultural, social), as managers must navigate the shift from technical expertise to a commercialistic focus in order to achieve partnership, signaling the true values of successful partners**.** Knechel, Niemi, and Zerni (2013) infer performance incentives through statistical determinants of partner compensation. They find a positive association with client size, number of public clients, industry specialization, and (in some firms) gaining new clients, and a negative association with audit failures and (in one firm) loss of existing clients. However, two more recent studies suggest that professionalism and commercialism may co-exist. Coram and Robinson (2017) report on factors influencing performance-based pay, finding that while firms track partner performance in revenue generation and obtaining new clients, they also reward technical expertise and staff development, suggesting increasing attention on professionalism. They find that in order to be competitive with the Big 4 firms, mid-tier firms are moving toward similar performance-based profit-sharing schemes. Broberg, Umans, Skog, and Theodorsson (2018) find that in non-Big 4 firms, professional identity is associated with three commercialistic orientations (i.e., market needs and strategies, satisfying customers, and firm business processes). However, in Big 4 firms, professional identity is associated with the firm's processes, not with market needs or customer satisfaction. While the association of organizational identity with commercial focus is expected based on prior research, this study shows that greater professional identity is also associated with firms' commercial activities.

4.1.2. Audit Quality and the Audit Process

Studies described in Table 1, Panel B examine the impact of professionalism/commercialism on audit processes and quality. Johansen and Christofferson (2017) survey staff auditors on the perceived importance that their firm's performance evaluations place on commercialistic values of efficiency (e.g., meeting budget) and client service (e.g., selling non-audit services) relative to audit quality (e.g., compliance with regulations and methodology). They find that dysfunctional behaviors (e.g., premature signoff, skipping audit procedures) are less frequent with a quality focus, more frequent with a client focus, and not affected by an efficiency focus. Big 4 auditors perceive greater (lower) emphasis on client

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(efficiency) focus and have lower organizational commitment, but are also less likely to engage in dysfunctional behavior. These results suggest that adopting a client service focus in performance evaluations could result in reduced audit quality.

Two archival studies find evidence of varying audit quality at the engagement level, suggesting differing client affinity across audit partners. Ittonen, Johnstone, and Myllymäki (2015) find higher audit quality for engagements of partners with more public clients, implying a tone of greater willingness to resist client pressure (i.e., less client affinity) in the engagements they lead. Chang, Choy, Lin, and Koo (2019) show that when partners switch firms, clients following to the new firm have lower audit quality than those that stay with the partner's former firm. This implies that clients expect continued latitude in future audits led by those partners, which overcomes the switching costs associated with changing firms. However, clients are less likely to follow the partner from Big 4 incumbent firms, consistent with better monitoring controls in Big 4 relative to smaller firms. Bauer (2015) shows that greater client identification leads to lower audit quality judgments, consistent with prior research, but finds firms can reduce the effect through guidance reinforcing professional identity. Koch and Salterio (2017) show that client affinity is associated with lower audit quality (i.e., adjustments to a client's proposed aggressive accounting), but do not find that a client satisfaction survey (implemented by the firm to measure the client relationship) induces greater client affinity. Relatedly, Hoang, Jamal, and Tan (2019) use proprietary data from a client satisfaction survey to find that engagement profitability increases with client satisfaction on intangible service dimensions (i.e., auditor communication, customized service, and responsiveness). While this suggests that auditors might attempt to increase client satisfaction by being more conciliatory, they do not find that client satisfaction is associated with lower audit quality (discretionary accruals and audit adjustments).

Two studies examine the role of economic incentives in the balance between professionalism and commercialism. Lisic, Myers, Pawlewicz, and Seidel (2019) find a negative association of audit quality with consulting relative to audit revenues pre-SOX, but this relationship is not observable post-SOX. In contrast, Beardsley, Lassila, and Omer (2019) find evidence post-SOX that fee pressure at the office level is associated with greater focus on non-audit services, which in turn results in lower audit quality at larger

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offices within a firm, suggesting a commercialistic orientation. The differing results of these studies suggest that firm-level analysis may be too broad to detect cultural differences that impact audit quality.

4.1.3. Auditor Mindsets and Work Attitudes

Table 1 Panel C summarizes research on the influence of professionalism/commercialism culture on auditors' mindsets and attitudes. In response to firms' reputational capital, increased competition, client demands and technology developments, Picard (2016) shows that a gradual shift from professionalism to commercialism occurred due to infiltration of marketing personnel and ideology, resulting in a marketing mindset. Picard, Durocher, and Gendron (2018) show how marketization resulted in closer relationships with clients, shifting auditors' ways of "thinking and doing" away from professional values. They conclude that both firm and individual level aspects of marketization potentially threaten auditor independence.

Several studies document the effects of pressure exerted by firm leadership on auditors. Guénin-Paracini, Malsch, and Paillé (2014) distill practices that form and reinforce a "culture of fear" among staff auditors, "emotionalizing" the audit process that prior research considers to be cognitive and technical. This fear arises from the "impossible mission" of meeting the firm's demands, driven in part by commercialism. Staff auditors' anxiety also arises from formal procedures (e.g., "risk framing"), long hours, and incentive systems. Similarly, Lupu and Empson (2015) find that auditors feel "helpless and trapped" by the culture of long hours. Firm norms of overworking employees imply that social and professional status is achieved by acceding to highly demanding work schedules, reinforced by partners' expectations and demands.

Ladva and Andrew (2014) also study the dominance of firm norms toward a long-hours culture, driven by pressure for efficiency, tight time budgets, and firms' overtime policies. This "web of control" reinforces an efficiency-based professional identity, career oriented and detrimental to work-life balance. While Ladva and Andrew (2014) imply that auditors adapt to this highly demanding culture with some degree of acceptance, Kornberger, Justesen, and Mouritsen (2011) show conflicts continue as auditors proceed on the path toward partnership. New managers reflect on difficulty and uncertainty of this transition, reporting changes in roles, power, and client relationships suggesting shifts from the technical to the commercial, instilled by individuals who have themselves made the transition. They learn to navigate

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the organizational network by "playing games and politicking." Caglio, Cameran, and Klobas (2019) show that auditors exhibit disillusionment after being immersed in the culture of auditing for a period of years, implying that professional identity is influenced through AFC. Finally, Daoust and Malsch (2019) find that auditors who have left public accounting report being overwhelmed by physical and emotional exhaustion, driven by a mismatch between self-identity and the cultural norms set by firm leaders. Key causes reported include lack of recognition in the incentive structure and budget constraints. However, over time, former auditors' perspectives shift to more positive feelings of professional superiority over non-auditor colleagues, and an appreciation of the usefulness of past experiences in their current roles.

4.1.4. Summary

Research cited in this section yields three high-level conclusions that we discuss here; detailed take-aways and future research questions arising from these studies are presented in Table 4 Panel A. First, in response to the question posed by Jenkins et al. (2008; i.e., have audit firms nurtured cultures emphasizing an appropriate level of professionalism), most research in our sample implies that the balance continues to tip toward commercialism. For example, a commercialized culture is noted to be driven by a marketing perspective, reinforced through EMs of tone at the top, incentive systems, and budgetary control. Within this overall finding, specific studies note that the goals of firm leadership are often oriented toward profits/economic capital, partner compensation is largely based on gaining and keeping clients, and audit quality is reduced when performance evaluations have a client focus or individual auditors have stronger client affinity.

Second, some recent studies imply that commercialism has declined and/or that professionalism can co-exist with commercial values. The perspective of co-existence is consistent with Knechel, Thomas, and Driskill (2020), who posit that cooperation between audit firm and client is necessary; i.e., a successful audit is co-created by auditor and client. However, they also note the associated risk of abdication of responsibility when cooperation crosses the line toward client affinity (as studies in our sample demonstrate).

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Third, some studies conclude that auditors experience highly emotional responses to commercialistic pressure imposed by firms' structure and cultural perceptions, including feelings of fear, conflict, helplessness, and exhaustion, even at higher ranks in the firm. However, other studies describe new auditors as internalizing or adapting to the ethos and becoming part of the enforcement process. The reasons for this difference in findings are unclear, as is the impact on audit quality.

4.2. Research on Ethical Culture in Audit Firms

This section covers studies examining the role and impact of ethical culture in auditing, i.e., social norms and practices that firms establish around ethical behavior, summarized in Table 2.[11] Research on ethical culture in auditing has been spurred by the auditing scandals of the 1990's and early 2000's, which implied declining ethics of individual auditors and their firms (e.g., Zeff, 2003a; Wyatt, 2004). As studies in this section fall naturally in distinct groups, we briefly review background literature in each subsection: auditors' perceptions of their firms' ethical culture; the association of ethical culture with professional skepticism; quality-threatening behaviors (QTBs; i.e., violations of standards or norms); whistleblowing on others' unethical acts; and auditors' work attitudes.

INSERT TABLE 2 NEAR HERE

4.2.1. Perceptions of Ethical Culture

Research on ethical culture recognizes that perceptions of the ethical culture of the workplace are important because they influence ethical behavior (e.g., Suddaby, Gendron, & Lam, 2009). Victor and Cullen (1988) present a multi-dimensional scale widely used in this literature, which includes ethicality of firm leadership, response to unethical behavior, ethical training, and codes of conduct. For example, Bobek, Hageman, and Radtke (2010) adapt this scale to detect differences in ethical culture within firms for tax professionals. Table 2 Panel A presents two studies in our sample investigating factors associated with such differences among auditors. Bobek, Dalton, Daugherty, Hageman, and Radtke (2017) find that the scale

[11] These studies rely on theory and findings from the literature on ethics. Authors use different terminology (e.g., *ethical culture*, *ethical climate* or *ethical environment*) to describe similar constructs; e.g., studies by Sweeney and colleagues use "ethical culture", while studies by Shafer and colleagues use "ethical climate". To simplify our discussion, we use the term *ethical culture* throughout.

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elements form a single factor, implying that multiple EMs jointly contribute to ethical culture. They also find stronger perceptions of ethical culture in Big 4 than in non-Big 4 firms. Bobek, Hageman, and Radtke (2015) show that non-leaders' perceptions of ethical culture are higher when they participate in shaping culture and have a better organizational fit with the firm. Ethical perceptions of leaders increase with strong professional orientation and/or recent mentoring.

4.2.2. Ethical Culture and Professional Skepticism

Table 2 Panel B summarizes research on the role of ethical culture on professional skepticism, building on a rich existing literature. Reviews by Nelson (2009) and Hurtt, Brown-Liburd, Earley, and Krishnamoorthy (2013) note that ethical/moral reasoning is a foundation of trait skepticism. Several of the studies in our sample examine professional skepticism as part of the fraud brainstorming and risk assessment processes. As fraud brainstorming became required in the early 2000's, questions arose as to how firms were implementing this requirement and its relative effectiveness. While studies prior to our sample period consider issues of fraud risk assessment and engagement planning (e.g., Knapp & Knapp, 2001; Glover, Prawitt, Schultz, & Zimbelman, 2003), relatively few consider brainstorming specifically. A key study within the fraud brainstorming literature is Carpenter (2007), who finds that brainstorming sessions yield more and higher quality fraud ideas and higher risk assessments than individual auditors acting alone, suggesting greater professional skepticism. In our sample, Dennis and Johnstone (2016) build on Carpenter (2007) by showing that audit partners are generally open to ideas during the sessions, stimulating ethical awareness. In addition, self-assessed levels of professional skepticism are higher on high risk engagements. Dennis and Johnstone (2018) manipulate guidance to partners leading actual brainstorming sessions; i.e., emphasizing training, encouraging balance of effectiveness/efficiency, and skepticism. These practices result in better mental representations of fraud risk for seniors (but not managers) and better outcomes. Gissel and Johnstone (2017) find that when the partner supports idea sharing, less knowledgeable brainstorming participants are more willing to share privately known information. Carpenter and Reimers (2013) find that partner emphasis on skepticism in brainstorming results in higher risk assessments and greater effectiveness. Harding and Trotman (2017) find auditor

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judgments are improved when partners encourage skepticism focusing *both* on testing management's word and recognizing the fallibility of one's own judgments.

Several studies in our sample address the association of ethical culture with skepticism in the context of accounting estimates, which Nelson (2009) notes is a particularly challenging setting when conceptualizing skepticism. Stevens, Moroney, and Webster (2019) consider positive aspects of ethical culture, finding that greater partner support yields more skepticism of management's forecast assumptions, but only when team cohesiveness is reinforced. Martinov-Bennie and Pflugrath (2009) show that audit managers are more conservative in response to reinforcement of an ethical code when client management proposes an aggressive valuation. On the negative side, Brink, Tang, and Yang (2016) find that when obedience pressure comes from a supervisor relative to peers, auditors judge lower risk and are less willing to investigate a questionable client proposed fair value estimate. Brazel, Jackson, Schaefer, and Stewart (2016) show that performance evaluations reinforce a culture discouraging skepticism, if supervisors penalize a subordinate's skeptical behavior when additional investigation does not find a misstatement. Consulting with supervisors prior to investigation improves performance evaluations but does not fully mitigate the impact of investigation outcome on the negative evaluation.

4.2.3. Quality-Threatening Behaviors

Research described in Table 2 Panel C assesses the association of ethical culture with behaviors that violate auditing standards or firm norms. Prior research (e.g., Otley & Pierce, 1996; Malone & Roberts, 1996; Herrbach, 2001; Pierce & Sweeney, 2004) investigates the levels of various QTBs in audit practice, establishing that perceptions of the firm's quality controls are among factors affecting their incidence. Pierce and Sweeney (2006) find auditors believe that the risk of detection of QTBs is low and show little regard for the ethical implications of these acts. From that basis, studies in our sample investigate ways in which ethical culture can influence QTBs, both positively and negatively. From a positive perspective, Herda, Cannon, and Young (2019) find that when supervisors emphasize the importance of auditing for financial report users, auditors are more mindful of their work and premature sign-off is reduced. Agoglia, Hatfield, and Lambert (2015) find that firms' efforts to discourage under-reporting of time are weakened

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for more desirable clients, as managers reward seniors who under-report time. However, partners do not favor under-reporting, suggesting conflict with managers' incentives. Shafer (2008) finds lower intentions to engage in QTBs when auditors perceive their firms' ethical culture as featuring social responsibility; i.e., the expectation to follow organizational systems and procedures, laws, and professional ethical codes.

Shafer (2008) also studies negative influence, finding that an egoistic culture (the expectation that auditors follow their own moral beliefs) is associated with more unethical behavior. Auditors at local firms are more likely than those at international firms to consider aggressive actions as ethical. Tsuogaya, Sugahara, and Chand (2017) find that obedience pressure from superiors is associated with more QTBs, but conformity pressure is not.[12] However, professional commitment mitigates the influence of partner pressure. Sweeney, Arnold, and Pierce (2010) find that unethical tone and pressure influence auditors' ethical evaluations of QTBs resulting from time constraints, but only pressure influences intention to engage in those actions. Timeliness of penalties is not associated with ethical outcomes, suggesting that pressure by supervisors plays a larger role than incentives in this context. Sweeney, Pierce, and Arnold (2013) further show that these associations are mediated by perceived ethical intensity of the QTBs. Sweeney et al. (2010) and Pierce and Sweeney (2010) find that auditors in larger firms have higher ethical evaluations and lower intentions to engage in unethical behavior, consistent with greater organizational support in those firms.

4.2.4. Whistleblowing

Studies described in Table 2 Panel D address the association of ethical culture with whistleblowing. The literature in auditing is guided by general research (e.g., Miceli, Near, & Dworkin, 2008) that focuses on the importance of organizational and individual antecedents. Bedard, Deis, Curtis, and Jenkins (2008) and Gao and Brink (2017) summarize extant literature as showing that organizational culture, incentive systems, and design of whistle-blowing channels are key influencing factors (e.g., Brennan & Kelly, 2007). Bedard et al. (2008) encourage further research on features of the auditing environment and on the changes

[12] Obedience pressure is a type of social influence pressure in which individuals change their behavior in response to commands made by those with authority whereas, conformity pressure results in a change in behavior due to pressure established by widely accepted beliefs or standards (Tsuogaya, Sugahara, & Chand, 2017; Baron & Byrne, 1981).

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since the passage of SOX. Research in our sample responds by studying the importance of tone at the top and other EMs. Alleyne, Haniffa, and Hudaib (2016) find that whistleblowing intentions are driven by perceptions of the firm's ethicality; i.e., support for ethical decision-making from senior personnel and perceived costs of reporting.[13] Alleyne, Hudaib, and Haniffa (2018) find that drivers of reporting vary by channel, with greater internal reporting based on perceptions of organizational support and expectations of the firm's response. Latan, Jabbour, and Lopes de Sousa Jabbour (2019) find that whistleblowing intention is affected by financial incentives, perceptions of pressure against reporting, and opportunity to report. Latan, Ringle, and Jabbour (2018) show that stronger organizational support and team norms strengthen the association of antecedents (e.g., opportunity to report and perceived cost of reporting) with intentions.

Taylor and Curtis (2013) find that a firm's prior actions (i.e., counseling versus reprimanding violators) are associated with perceived ethical culture. Taylor and Curtis (2018) further find that higher quality mentoring improves perceptions of ethical culture, which in turn improves internal reporting of fraud, through greater trust and organizational commitment. McManus and Subramaniam (2009) study mentoring processes, finding that early career accountants' ethical evaluations of a questionable partner decision are stronger when mentoring focuses on career development rather than on social support, and peers are viewed as more ethical. Use of an external channel (calling an accounting body for advice) is greater in small or mid-tier firms, relative to Big 4 firms. Robertson, Stefaniak, and Curtis (2011) find auditors are more likely to report less likable and poorly performing supervisors, especially when reporting internally and through non-anonymous channels. Perceived repercussions of *not* reporting wrongdoing are more influential in guiding intention than the possible impact of reporting on performance evaluation.

4.2.5. Work Attitudes

Table 2 Panel E summarizes research on ethical culture and auditors' work attitudes. Hall, Smith, and Langfield-Smith (2005) summarize relevant research within and outside of auditing, concluding that commitment to the profession and to the firm affects job satisfaction and turnover intention. Other research

[13] Alleyne, Hudaib, and Pike (2013) also develop a model that addresses auditors' whistleblowing intentions, establishing key components consistent with Alleyne et al. (2016) as antecedents to auditors' reporting intentions.

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demonstrates the association of turnover intention with variation in audit quality (e.g., as a predictor of QTBs; Donnelly, Quirin, & O'Bryan, 2003).[14] Studies in our sample extend the literature by assessing the influence of aspects of ethical culture on work attitudes. For example, Cohen, Dalton, and Harp (2017) show that lack of partner support for skepticism is associated with lower perceived organizational support, less organizational citizenship behavior, and higher turnover intention. These perceptions are driven by demanding schedules, tight budgets, and performance evaluations that do not adequately reward skepticism. Large firm auditors perceive lower levels of partner support for skepticism resulting from these EMs (e.g., evaluation systems that emphasize selling non-audit services), compared to auditors in smaller firms. McManus and Subramaniam (2014) find that new auditors' organizational and professional commitment are higher when mentors focus on career development (as opposed to social support) and top management does not tolerate unethical behavior.

Shafer (2009) and Shafer, Poon, and Tjosvold (2013) find that auditors' perceptions of an egoistic culture are associated with greater organizational-professional conflict and lower organizational commitment. These associations are reversed for more benevolent or principled ethical cultures that reward following firm procedures and ethical codes. Shafer et al. (2013) find that professionally committed employees feel less organizational-professional conflict when the firm places greater emphasis on the public's interest. Finally, Herda and Lavelle (2011) go beyond the immediate employment environment to find that auditors' propensity to support a firm after leaving is positively associated with perceptions of organizational fairness and support of their former employer.

4.2.6. Summary

Research in our sample yields three high-level conclusions that we discuss here; detailed take-aways and research questions arising from these studies are presented in Table 4 Panel B. First, this research affirms that tone at the top established by firm leadership drives auditors' perceptions of ethical culture. In these studies, tone at the top is evidenced by factors such as leaders' own ethicality, their prior reaction to

[14] Relatedly, the PCAOB identifies personnel turnover as a root cause of audit inspection deficiencies (Hanson, 2015); thus, understanding the role of ethical culture in organizational commitment and turnover intention is important.

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ethical issues, and their expectations for compliance with firm policies and procedures. Other studies investigate tone set by engagement leaders, showing that subordinates' ethical perceptions are associated with an encouraging environment that supports skeptical behavior. A number of studies find that positive ethical tone (e.g., emphasis on audit quality during brainstorming, maintaining a psychologically safe environment, emphasizing interests of users, and support for whistleblowing or ethical behavior) influences audit quality and/or work attitudes. Additionally, some research finds lower audit quality is associated with a negative (i.e., unethical) culture (e.g., obedience pressure, or an "egoistic" firm culture allowing auditors to go their own way rather than follow firm norms). Thus, our sample studies confirm prior research that ethical culture matters for good or ill. Their use of a broad mix of tasks and methods enhances confidence in the findings and contribution to the literature, as does extending to a variety of outcomes. Further, these studies go beyond direct effects of ethical culture by examining contingent factors; finding for instance that firms' efforts to reduce under-reporting of time are undercut for highly desirable clients; and effects of pressure to engage in QTBs is lower for professionally committed auditors. Thus, while the overall conclusion of these studies is that ethical tone set by firm leadership matters, they also identify limits on this effect.

A second observation arising from studies of ethical culture is that some consider multiple EMs. Because auditors work in complex environments where many EMs operate simultaneously, such research is important in enhancing understanding of the topic. Of those studies, many report that several EMs influence cultural perceptions and/or consequences. However, some studies detect interactive effects among the EMs studied. For instance, Stevens et al. (2019) find that greater partner support yields more skepticism of management's forecast assumptions, but only when team cohesiveness is reinforced. That finding implies a synergistic interaction, but EMs might also conflict; e.g., when an auditor experiences a strong mentor but weak ethical tone of leadership, which is the more important force?

A third point arising from research in this section concerns how ethical culture develops. While Jenkins et al. (2008) focus on formal ethical training, studies in our sample concern informal interactions with supervisors and/or mentors. For instance, Herda et al. (2019) imply that coaching is the process through

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which the ethical tone of the organization is conveyed, and McManus and Subramaniam (2014) find that mentoring style emphasizing career development is more effective.[15]

4.3. Research on Learning Culture in Audit Firms

In this subsection, we review research on AFC related to the learning environment, summarized in Table 3. The literatures on organizational learning (e.g., Popper & Lipshitz, 1998) and knowledge sharing within audit firms (e.g., Vera-Munoz, Ho, & Chow, 2006) propose that purposeful engagement of leadership, structures, and procedures encourages learning. These practices support gathering, disseminating, and using information relevant to task performance. As studies in this section comprise three topics, we briefly review background literature within each subsection: the role of firm culture in acquiring knowledge from outside the engagement team; sharing and using knowledge within engagement teams; and firm/engagement team level cultural practices related to promoting and assessing individual learning.

INSERT TABLE 3 NEAR HERE

4.3.1. Learning from Outside the Engagement Team: Systems, Specialists and Other Teams

Studies examining the role of AFC in encouraging auditors to acquire and use knowledge from sources outside the engagement team focus on (1) the use of electronic support systems; (2) the use of specialists; and (3) communication with other firm offices (Table 3 Panel A). First, electronic support systems are implemented by firm leadership to capture, organize, and/or disseminate information. Research generally finds that such systems, widely used especially in large firms (Janvrin, Bierstaker, & Lowe, 2008), are associated with audit quality (e.g., Banker, Chang, & Kao, 2002). Bedard et al. (2008) conclude that the pre-2008 literature on audit support systems not only identifies benefits to audit quality, but also threats (e.g., working around system constraints). Studies they cite consider issues of systems design and training to mitigate system misuse, but do not stress aspects of culture supporting auditors' acceptance and use of

[15] Jenkins et al. (2008) acknowledged a lack of current information on ethics training in public accounting, calling for descriptive research, but focus primarily on formal training in firms and universities. While our search terms would not necessarily detect all studies of ethics training, it is interesting that our sample references only on-the-job development of ethics, not formal programs.

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technology that are prominent in general systems research (e.g., Venkatesh, Morris, Davis, & Davis, 2003); e.g., the role of social influence factors (cultural norms).

Three studies in our sample reinforce the importance of tone at the top on intention or actual use of work technologies, and identify ways in which firms can improve their impact on audit quality. Curtis and Payne (2008) find that a longer budgeting horizon improves user intentions. Lin and Fan (2011) confirm the importance of peer support in establishing subjective norms, and show that the influence of such norms on user intentions is larger in Big 4 firms, where the pressure to comply is presumably greater. Dowling (2009) finds that perceptions of consensus among firm leaders and peers regarding system use are antecedents of normative pressure to use the system appropriately. Firms vary in the extent to which they constrain users in performing tasks, with more restrictive systems associated with higher audit quality.[16]

Second, auditors acquire knowledge through consultation with specialists. Hux's (2017) literature review notes that the use of specialists is growing, and while there are benefits to audit quality, issues around their use have captured regulators' attention. Four studies in our sample relate to use of audit specialists. Gold, Knechel, and Wallage (2012) find that mandatory consultation increases forensic specialist use when fraud risk or deadline pressure is high. Relatedly, two studies demonstrate the key role of firm leadership's support in developing trust and teamwork, improving the effectiveness of consultations. Asare and Wright (2018) emphasize the influence of senior team leaders who develop a "culture of consultation" based on communication, relationships, and sharing of real-world experiences. Bauer and Estep (2019) find that leadership's support improves relationships between auditors and specialists, and perceptions of the firm's culture as "one team" results in improved communication and coordination. In contrast, Smith-Lacroix, Durocher, and Gendron (2012), Griffith (2019), and Asare and Wright (2018) argue that use of specialists could increase costs and delays, straining the auditor-auditee relationship.

[16] Dowling and Leech (2014) extend this study by examining how the new audit support systems of a Big 4 firm facilitates learning. Auditors consider the system's restrictiveness as enabling rather than coercive. For example, results show that the system's features make the firm's audit methodology more explicit and transparent through a hyperlinking function. Thus, the system facilitates learning of the global methodology, potentially aligning cultures across firms and offices.

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Smith-Lacroix et al. (2012) find that greater specialist use to achieve assurance erodes the role of the audit partner, who becomes a mobilizer of experts rather than a decision maker. When auditors lack specific knowledge, they must place greater trust in specialists, resulting in tension between their need for comfort and their authority, leading to competition over cooperation (Griffith, 2019). This is especially an issue at large audit firms that have more structured guidelines regarding consultation with specialists.

Third, culture might affect learning from outside the audit team through communication with other teams and offices. Earlier studies document variation in audit quality across sub-units of firms (e.g., Reynolds & Francis, 2000; Francis, Reichelt, & Wang, 2005), supporting the audit firm as a "collection of geographically decentralized offices" (Beck, Gunn, & Hallman, 2019, p. 1) rather than a monolithic organization. Two studies in our sample consider the influence of geographic distance between offices. Seavey, Imhoff, and Westfall (2018) and Beck et al. (2019) show that audit quality increases with closer office proximity. Seavey et al. (2018) report auditors' views that a culture of knowledge sharing is encouraged by partner-to-partner communication, appraising knowledge sharing in partner performance evaluations, and joint training sessions across offices. Beck et al. (2019) find that proximity between large and small offices of a firm improves audit quality due to a culture of support and knowledge spillover.

4.3.2. Learning Within the Engagement Team

Table 3, Panel B presents studies of learning during the course of the audit; i.e., learning from prior errors and speaking up to communicate ideas. Vera-Munoz et al. (2006) cite the importance of information exchange among auditors of differing backgrounds and ranks. For example, prior research shows long-term positive consequences of communicating errors (e.g., Van Dyck, Frese, Baer, & Sonnentag, 2005), despite the potential cost to the individual. Zhao and Olivera (2006) specify culture and norms around error disclosure as key factors affecting error reporting (error management culture, EMC hereafter). While all studies in this subsection focus on training, they vary in other aspects of culture studied. Gronewold and Donle (2011) find that a high EMC, reinforced by leadership's support for learning from errors, is associated with better handling of the auditor's own and client errors. Seckler, Gronewold, and Reihlen (2017) develop

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a model of error management, noting influence by effective leadership (e.g., expectations regarding feedback), training (e.g., learning and development plans), organizational systems and procedures (e.g., formalized audit methodology to ensure the firm complies with professional standards), and organizational design and structure (e.g., geographical locations and service lines).

Gronewold, Gold, and Salterio (2013) and Gold, Gronewold, and Salterio (2014) examine the influence of office-level EMC on auditors' willingness to report errors. Both find greater reporting of discovered errors in an open EMC, reinforced by leadership support, performance evaluation systems that do not penalize for errors, and coaching focused on learning. Gold et al. (2014) additionally find that an open EMC improves reporting of mechanical errors (e.g., erroneous calculations), but not conceptual errors (i.e., relating to complex judgments or adequacy of audit work), likely due to impression management efforts. Emby, Zhao, and Sieweke (2019) study audit seniors' willingness to "model their fallibility" (i.e., discuss their own errors) as a way of coaching, and a signal of error climate. They find that this practice can stimulate subordinates to think clearly about their own errors and communicate them to others.

Other studies examine auditor "voice" (i.e., willingness to speak up regarding problems detected). Stefaniak and Robertson (2010) find that auditors are more likely to admit errors when the supervisor's prior reaction to a subordinate's errors was positive. Nelson, Proell, and Randel (2016) find that team-oriented leadership increases speaking up, especially when the issues are aligned with supervisors' concerns for audit effectiveness or efficiency, and are mediated by an individual's commitment to the team leader and identification with the team. Nelson and Proell (2018) further find that in the performance assessment process, audit leaders encourage speaking up through higher performance ratings for those who do so. Lastly, Kadous, Proell, Rich, and Zhou (2019) find that speaking up is associated with auditors' intrinsic versus extrinsic motivation for their job performance. Supervisors can leverage that effect by making intrinsic rewards more salient in their own emphasis.

4.3.3. Learning from Engagement Review, Feedback, and Performance Evaluation

Table 3 Panel C summarizes studies examining individual learning through feedback from engagement reviews, performance evaluation, and coaching employees toward future success. Andiola's

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(2014) review of the auditing feedback literature cites a number of studies showing the consequential nature of review methods (e.g., Brazel, Agoglia, & Hatfield, 2004) and review processes (e.g., Trotman & Yetton, 1985). Most related to our interest, she discusses the limited prior literature in auditing (e.g., Anderson-Gough, Grey, & Robson, 1998) on the influence of the learning environment (the organizational context in which feedback is given and received) on feedback quality.

The studies in our sample contribute to the literature by examining features of the review context. Westermann, Bedard, and Earley (2015) study on-the-job learning of technical knowledge, through supervisors' guidance and preferences communicated through the apprenticeship model. They note that while staff learning is shaped by firm processes (e.g., performance evaluation, review and coaching), the apprenticeship model implies that resources are allocated less to formal training (e.g., staff induction) and more to training on the job. Their results imply that the review process and coaching from supervisors are insufficiently rewarded. Cameran, Ditillo, and Pettinicchio (2018) find lower audit quality on engagements with more hours allocated to partners and managers, suggesting that audit staff lack opportunities to learn from more senior professionals on such engagements when fewer hours are allocated to them.

Andiola and Bedard (2018) study factors affecting audit subordinates' responses to negative feedback during reviews, a necessary aspect of learning from experience. Results show that more negative feedback is associated with worse coaching relationships and with more attempts to manage supervisors' impressions, but also with greater performance improvement efforts. However, these reactions are moderated by how supervisors frame the goals of feedback: salience of the coaching relationship declines when supervisors focus on performance goals, but not on learning goals. Andiola, Bedard, and Westermann (2019) show that key causes of inconsistencies in subordinates' perceptions of the audit review process are variation in the supervisor's tone, poor feedback, insufficient resources allocated to reviewing and coaching, and incentive structures that do not reward those activities. Further, Dalton, Davis, and Viator (2015) find that helpfulness and consistency of the supervisor's advice in practice vary significantly and that unfavorable feedback environments are associated with lower organizational commitment and higher turnover intention, moderated by an effective mentor.

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4.3.4. Summary

Research cited in this section yields three high-level conclusions; detailed takeaways and future research questions arising from these studies are presented in Table 4 Panel C. First, various EMs play a role in cultivating learning culture, including tone at the top (e.g., leadership support for developing trust and teamwork or leading by example through their own openness to learning), incentive structures (e.g., appraising knowledge sharing and learning in performance evaluations), training (e.g., coaching focused on learning from errors), sufficient resources to enable learning (e.g., having the time to provide an effective review and feedback), supporting organizational systems and procedures (e.g., review and consultation policy or the provision of audit aid systems), and organizational design and structure (e.g., consultation units and the apprenticeship model). In addition, research finds these perceptions of learning culture affect audit quality aspects like auditors' willingness to speak up about audit issues or openly discuss errors in audit processes, how audit staff develop and learn from audit review and feedback, and how auditors consult with experts and specialists.

Second, our sample studies show that the engagement is the key learning environment, implying firms should focus on how to improve coaching and review. To accomplish this, studies in this section show that supervisors need to focus on the subordinate's learning, not just on their performance, and give solid and consistent advice (even if negative). Further, audit firms need to support supervisors by providing training, resources, and incentives to enable supervisors to do that. Similarly, tone at the top is instrumental in auditors' acceptance and use of technology, in fostering trust and teamwork necessary to make consultations with specialists effective, and for knowledge sharing (both within and across offices). Yet the research documents substantial variation in mechanisms residing closer to the individual, implying either that leadership is poorly communicated overall, or there are "pockets" where it is effective or ineffective.

Third, although our review includes a number of papers addressing learning culture in the context of consultation with peers and specialists, it remains an empirical question which EMs (e.g., effective leadership, sufficient resources) are most effective in building a "consultation culture", a concept that the IAASB (2014) identifies as a key prerequisite of a culture focused on audit quality. This is of particular

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interest as some research identifies cultural differences between audit and other service lines (e.g., systems consultancy; Bauer & Estep, 2019).

5. Limitations and Conclusions

In this review, we synthesize research in high quality journals from 2008-2019 relating to organizational culture in audit firms and provide suggestions for future research. In this section, we note limitations associated with procedures we used to prepare this synthesis, provide an overall summary, and link to future research questions arising from pervasive issues (Table 4 Panel D). First, because culture is a prevalent feature of any organization, much of the auditing literature is potentially relevant. Our design is aimed at addressing key issues, within a paper of reasonable length. Thus, our search terms capture research covering core concepts of culture, interpreted based on a model of AFC developed from academic research and audit practice, which comprises EMs, perceived culture, and consequences. Second, because our model implies study of AFC in large, complex organizations with multiple layers of leadership and international reach, we include studies of Big 4 firms, and those that compare Big 4 to smaller firms. Third, while we divide research into three main themes for discussion, we recognize that they are not completely distinct; e.g., ethical behavior in auditing encompasses, but is not limited to, compliance with professional standards. Despite these limitations, our review informs audit firm management, researchers, and regulators on the current state of knowledge regarding the status of AFC, the EMs under management control that contribute to establishing AFC, and the influence of those forces on audit quality and auditors' work attitudes.

INSERT TABLE 4 NEAR HERE

In closing their research synthesis, Jenkins et al. (2008) question whether audit firms have successfully nurtured cultures of professionalism and protecting the public interest and note that "time and carefully performed research" are needed to answer this question. Over ten years have passed since their review, and many AFC studies have been published in leading journals in the field. Our synthesis shows concern that commercialization still infringes on professionalism, although recent studies suggest that both might co-exist. Further, studies in our sample confirm that firm or engagement level leadership influences audit outcomes through tone at the top, using a variety of research methods, specific measures of tone, and

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measures of consequences related to audit quality and auditors' work attitudes. From audit practice, there is evidence that firms have been working over the past decade to improve AFC; e.g., FRC (2018) reports that about 80 percent of auditors are satisfied with their firm's cultural design and tone at the top among firm leaders. But while firms are working to improve AFC, major accounting failures continue to occur.

Why might this be the case? One possible factor is that tone at the top and other EMs are not completely congruent.[17] Regulatory (IAASB, 2014; FRC, 2018) and theoretical perspectives (Schein, 2017) imply that AFC is best driven by a well calibrated configuration of EMs. Further research is needed that identifies where congruencies or conflicts occur between tone and other EMs. Further, research that examines several EMs simultaneously does not always compare between them; e.g., when leadership tone and incentives conflict, which is more important in driving an auditor behavior? Also, as research generally focuses on a single level (e.g., firm, office, or engagement), we lack information on how EMs differ among subunits within a firm; and when cultures diverge, how these EMs interact in combination and which has the primary influence on auditor behavior. Relatedly, future research could investigate the extent and circumstances (e.g., configuration of EMs) under which increased audit firm focus and public scrutiny on quality has resulted in changes in AFC (e.g., professionalism over commercialism), auditor behavior, and actual audit quality.

[17] The FRC (2018) report suggests this explanation, in finding that auditors surveyed are less satisfied with the quality of monitoring in their firms than with tone at the top.

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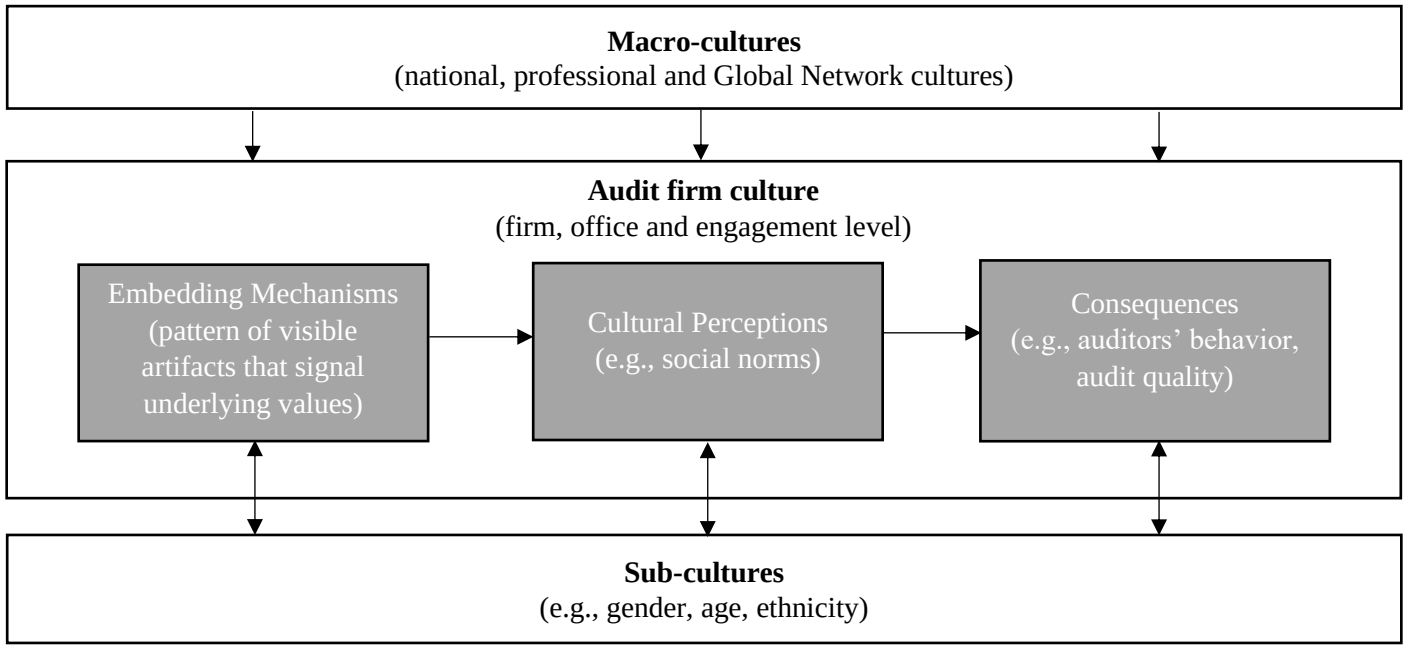
FIGURE 1
Theoretical Model



Notes: This figure presents an overall model of the study of culture in auditing. While our main analysis is at the (national) firm, office and engagement level, we also consider forces from above the firm (e.g., national identities and network cultures) as well as sub-cultures relating to individual level characteristics (e.g., gender, age, rank/experience) that might influence inferences and consequences of culture. These are discussed in online Appendix C [*URL here*].

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TABLE 1
Elements of Professionalism/Commercialism Culture Measured in Identified Studies

	Primary Embedding Mechanisms				***Secondary Embedding Mechanisms***		***Key Findings***	
	Tone at the Top (TT)	**Incentives (INC)**	**Training (TR)**	**Resources (RES)**	**Org. design & structure** *(ODS)*	**Org. systems & procedures** *(OSP)*	**Cultural Perceptions *(CP)***	**Consequences** (CON)
Panel A. The Status of Professionalism and Commercialism in Audit Firm Culture (AFC)								
Gendron & Spira (2009)	Leaders' failure to prevent fall of Arthur Andersen	Compensation systems and promotion mechanisms (market control)				Organiza-tional rules and policies (bureaucratic control)	***CP*** of shared values and norms (clan control)	Failure of Arthur Andersen (CON) could have been prevented by firm management (**TT**) through bureaucratic controls (*OSP*) and clan controls (***CP***).
Sweeney & McGarry (2011)	Partners' espoused goals						***CP*** of publicly expressed goals vs. those espoused by audit partners (**TT**)	Perceived commitment to profitability over professional standards (CON) results from partner's focus on profits (**TT**) as opposed to goals of AQ and client satisfaction espoused publicly (***CP***).
Carter & Spence (2014)	Partners' espoused values	Incentive system for promotion to partner ("good client management")					***CP*** of "capital" valued by firms (cultural, social, linguistic and economic)	Successful professionals (CON) result from incentive systems (**INC**) that promote partners whose focus shifts from technical expertise to commercialism (economic capital; ***CP***), reinforcing the espoused values of those partners (**TT**).
Knechel, Niemi, & Zerni (2013)		Partner compensation system						Partner compensation (**CON**) varies considerably due to **INC** systems driven by; e.g., client size, client portfolio composition and change, industry specialization, gaining new clients and audit failures.
Coram & Robinson (2017)		Partner profit-sharing systems (financial & nonfinancial measures)						Firms attempt to manage the tensions between professionalism and commercialism (CON) through the type of profit-sharing systems employed (**INC**).

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Broberg, Umans, Skog, & Theodorsson (2018)		Performance goals; rewards for assignment performance		Allocation of resources to business processes	Designation of process owners; measurement of business process outcomes		***CP*** of firm's market, customer and process orientations; process is associated with the EMs	
Panel B. Audit Quality (AQ) and Audit Processes								
Johansen & Christof-fersen (2017)		Focus rewarded in performance evaluations: efficiency, client or quality					Firm values (***CP***) revealed by **INCs** inherent in performance evaluations	Dysfunctional behavior (CON) is positively (negatively) associated with a client (quality) focus in performance evaluations (***CP*** and **INC**); efficiency focus has no adverse effects.
Ittonen, Johnstone, & Myllymäki (2015)	Partner tone implied by client portfolios	Economic dependence on the client						AQ (abnormal accruals; CON) is higher for partners with more public clients (**TT**), greater ability to resist client pressure as a result of less dependence on any one client (**INC**).
Chang, Choy, Lin, & Koo (2019)	Partner tone implied by client "following" behavior							AQ (restatements; CON) is lower for clients who follow the engagement partner to a new audit firm, implying the partner's client affinity (**TT**) was a factor in the choice to follow.
Bauer (2015)						Reinforce-ment of professional values in audit methodology		When auditors agree with the client, judgment quality is lower (CON) when client identity is strong; impact is reduced when professional identity is heightened by a reminder of professional values (*OSP*).
Koch & Salterio (2017)						Implemen-tation of a customer relationship management (CRM) program		Auditor adjustments to aggressive client accounting (CON) are lower when affinity for client and explicit client pressure are higher, subject to a boundary condition; the CRM program (*OSP*) does not affect client affinity or adjustments.

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Hoang, Jamal, & Tan (2019)	Firm leaders' commercial emphasis	Performance evaluation focus on AQ vs. engagement realization rates	Auditor expertise (industry specialization)				Partners view realization rates as the primary metric for assessing profitability (**INC**)	AQ (CON) is not reduced under a commercial emphasis (**TT**), where engagement profitability is measured by realization rates (**INC**); profitability is associated with the lead audit senior manager's technical expertise (**TR**) and client satisfaction with intangible services.
Lisic, Myers, Pawlewicz, & Seidel (2019)		Relative power of incentives from audit vs. consulting services		Resources devoted toward consulting vs. audit services				Pre-SOX, AQ (CON) is reduced by consulting revenue relative to total revenue (**INC, RES**); post-SOX, no impact of **INC** on AQ and market perceptions of AQ.
Beardsley, Lassila, & Omer (2019)	Leaderships' focus on advisory services			Audit fee pressure				Lower AQ (CON) results from audit offices with increased focus on non-audit services (**TT**), resulting from audit fee pressure (**RES**).
Panel C. Auditor Work Mindset and Attitudes								
Picard (2016)	Partners' acceptance of marketing experts				Marketing units and hiring of marketers		***CP*** of marketization of accountancy resulting from the EMs	Pervasiveness of marketing mindset and practices (CON) results from firms' desire to maintain reputational capital, increased competition, client demand and technology developments. ***CP*** of marketization has transformed the field and reconfigured accountants' identity to that of a "marketed accountant".
Picard, Durocher, & Gendron (2018)	Marketing mindset through colonization				Marketing units		***CP*** of firms' market orientation resulting from the EMs	Pervasiveness of marketing mindset and practices (CON) is associated with the expansion of the marketing specialization (**TT** and *ODS*) within firms driving change in auditors' ***CP***.
Guénin-Paracini, Malsch, & Paillé (2014)	Supervisors' expectations and demands	Compensation systems and promotion mechanisms	Formal review processes used to maintain fear	Long hours sometimes in excess of the budget		Audit procedures that cultivate fear; e.g., use of "risk" in instructions	***CP*** of the firm's demands (the "impossible mission")	Auditors' fear (CON) results from anxiety arising from unachievable firm demands (***CP***) and EMs coded. Auditors attempt to alleviate fear through audit procedures, to obtain a certain degree of comfort. AQ can also be affected if fear leads to inappropriate responses to risk.

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Lupu & Empson (2015)	Partners' expectations and demands	Promotional rewards for acceding to demanding work schedules					**CP** of firm norms toward overworking employees	Attitudes of feeling "helpless and trapped" (CON) from firm norms toward overworking employees (***CP***), derived from social/professional status (**INC**) achieved for adhering to these norms to fulfill partners' expectations/demands (**TT**).
Ladva & Andrew (2014)	Long-hours culture	Rewards for efficiency, leading to uncompensated overtime		Pressure from tight engagement hours budgets		Firm overtime policies and time budgeting processes	***CP*** of need to forgo work-life balance to build reputation for efficiency are influenced by the EMs	Professional identity (CON) is influenced by long-hours culture (**TT**), reinforced through lack of reward for overtime (**INC)**, budget pressure **(RES**), and need to build reputation for efficiency (***CP***).
Kornberger, Justesen, & Mouritsen (2011)	Leaderships' emphasis on partners' entrepre-neurial activity	Incentive system for promotion to partner	Coaching role (mentoring & training); development of "soft skills"	Responsibility for team resource allocation	Complex organizational network of persons and information flows		***CP*** of manager's role and responsibilities are influenced by the EMs	New manager's identity is destabilized toward "playing games and politicking" (CON), driven by developing ***CP*** of what it means to be a manager.
Caglio, Cameran, & Klobas (2019)	Work environment of auditing "far from ideal"							Disillusionment about professionalism (CON) is associated with longer experience with AFC (**TT**).
Daoust & Malsch (2019)	Partners' and managers' expectations and demands	Lack of recognition; undesirable characteristics needed to achieve promotion		Budget constraints that place undue stress on auditors			***CP*** of their past careers as auditors is associated with the EMs	Participants convey memories of physical and emotional exhaustion (CON) driven by ***CP*** of conflict between self and firm norms; more positive feelings are conveyed from current perspectives on experiences impacting current roles.

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TABLE 2
Elements of Ethical Culture Measured in Identified Studies

	Primary Embedding Mechanisms				***Secondary Embedding Mechanisms***		***Key Findings***	
	Tone at the top (TT)	**Incentives (INC)**	**Training (TR)**	**Resources (RES)**	**Org. design & structure (*ODS*)**	**Org. systems & procedures (*OSP*)**	**Cultural Perception (*CP*)**	**Consequences (CON)**
Panel A. Perceptions of Ethical Culture								
Bobek, Dalton, Daugherty, Hageman, & Radtke (2017)	Leaderships' influence on ethical behavior	Rewards and sanctions	Ethics training			Ethics procedures, rules and codes	***CP*** of ethical social norms and the EMs mentioned load on a single factor measuring the ethical culture	
Bobek, Hageman, & Radtke (2015)	Leaderships' influence on ethical behavior	Rewards and sanctions	Ethics training			Ethics procedures, rules and codes	Factors affecting perceptions of ethical culture vary for leaders vs. non-leaders	
Panel B. Ethical Culture and Professional Skepticism (PS)								
Dennis & Johnstone (2016)	Partners' or forensic specialists' leadership			Timing and effort spent preparing for and engaging in the fraud session		Fraud brainstorming procedures (e.g., checklists)		Brainstorming quality is higher (CON) when greater resources (**RES**) are allocated to brainstorming on high-risk engagements; brainstorming sessions rely less on checklists (**OSP**) for public companies when **TT** and inherent risk are high.
Dennis & Johnstone (2018)	Partner emphasis on PS in brainstorming sessions		Fraud training					Changes in mental representation of fraud risk and brainstorming outcomes (CON) for seniors improve with quality leadership (**TT**); use of unpredictable procedures (CON) increases with fraud training (**TR**).

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Gissel & Johnstone (2017)	Partner leadership style (psycholo-gical safety)							Less knowledgeable fraud brainstorming participants are more willing to share fraud-relevant information (CON) when the **TT** encourages psychological safety.
Carpenter & Reimers (2013)	Partner emphasis on PS							Auditors provide higher fraud risk assessments and more effective audit procedures (CON) when **TT** is high.
Harding & Trotman (2017)	Partner emphasis on PS							Audit judgments (CON) are improved when the importance of professional skepticism is emphasized (**TT**).
Stevens, Moroney, & Webster (2019)	Partners' support for task completion						***CP*** of team level cohesiveness towards judgments and decisions	Higher professional skepticism (CON) when team identity salience is high (***CP***) and the partner is supportive (**TT**); mediated by motivation.
Martinov-Bennie & Pflugrath (2009)						Presence and reinforcement of a code of conduct		Judgments of audit managers are more conservative (CON) with the reinforcement of an ethical code (*OSP*).
Brink, Tang, & Yang (2016)	Partners' obedience pressure						***CP*** of conformity pressure from peer auditors	Auditors judge lower risk and are less willing to investigate a client-generated estimate (CON) when there is partner pressure (**TT**); judgments impacted by estimate source when advice comes from a peer (***CP***).
Brazel, Jackson, Schaefer, & Stewart (2016)	Supervisors' emphasis during consultation	Performance evaluations	Consultation with a supervisor					Subordinates are penalized (CON) through performance evaluations (**INC**) when additional investigation does not detect a misstatement; prior consultation with the supervisor (**TR**), regardless of type of (**TT**), does not mitigate this effect.

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Panel C. Quality-Threatening Behaviors								
Herda, Cannon, & Young (2019)	Supervisors' emphasis on users		Coaching of workplace mindfulness					Lower Premature sign-off (CON) when coaching (**TR**) from supervisors emphasizes (**TT**) the importance of auditors' work to external users.
Agoglia, Hatfield, & Lambert (2015)	Firms' efforts to reduce under-reporting of time	Variation in incentives; Performance evaluation		Future engagement staffing decisions				For desirable clients, managers (not partners) encourage underreporting of time (**TT**) by rewarding (**INC, RES**) those who underreport and choosing them for future engagements (CON).
Shafer (2008)	Expectations set by firm leadership	Incentives for career success				Compliance with firm policies and procedures; ethical code	***CP*** of the firm's ethical culture is driven by *OSP* and **INC** and **TT**	Intention to commit questionable acts (CON) is associated with ***CP*** of the firm's ethical culture.
Tsunogaya, Sugahara, & Chand (2017)	Partners' obedience pressure						***CP*** of conformity pressure from peer auditors	QTB is associated with obedience pressure (**TT**); no impact of conformity pressure (***CP***).
Sweeney, Arnold, & Pierce (2010)	Leaderships' tone toward unethical behavior	Penalties for unethical behavior		Time pressure			***CP*** of unethical pressure to engage in dysfunctional behaviors	Ethical evaluation (CON) is influenced by **TT** and ***CP***; which influences intention to engage in unethical behavior (CON).
Sweeney, Pierce, & Arnold (2013)	Leaderships' tone toward unethical behavior	Penalties for unethical behavior					***CP*** of unethical pressure to engage in dysfunctional behaviors	The association between ethical decision-making (CON) and ethical culture (**TT**, **INC** and ***CP***) is mediated by ethical intensity.
Pierce & Sweeney (2010)	Leaderships' tone toward unethical behavior	Penalties for unethical behavior					***CP*** of unethical pressure to engage in dysfunctional behaviors	Big 4 auditors are less likely to engage in unethical behavior (CON), perceive a stronger ethical **TT,** facing higher costs for unethical behavior (**INC**).
Panel D. Whistleblowing								
Alleyne, Haniffa, & Hudaib (2016)	Senior firm members' ethical tone	Cost of reporting					***CP*** of the "ethicality of audit organizations" is driven by senior firm members (**TT**)	Whistleblowing intentions (CON) are associated with the ethicality of the firm (***CP***) and perceived personal costs of reporting (**INC**).

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Alleyne, Hudaib, & Haniffa (2018)	Firms' support of reporting unethical practices	Costs of reporting					***CP*** of organizational support	Internal vs. external whistleblowing intentions (CON) are associated with personal costs of reporting (**INC**) and perceived outcomes of reporting (**TT**); greater impact when ***CP*** is high.
Latan, Jabbour, & Lopes de Sousa Jabbour (2019)	Firms' support for reporting unethical practices	Financial incentive for reporting; risk of being laid off for reporting					***CP*** of firm pressure against reporting and the opportunity to report, reinforced by **TT** and **INC**	Whistleblowing intentions (CON) are positively associated with **INC**, opportunity to report (***CP***) and rationalization; negatively associated with pressure against reporting (***CP***).
Latan, Ringle, & Jabbour (2018)	Firms' support for reporting unethical practices	Costs of reporting					***CP*** of organizational support and team norms	Association of whistleblowing intentions (CON) and antecedents (e.g., perceived outcomes of reporting (**TT**) and personal costs of reporting (**INC**)); moderated by ***CPs***.
Taylor & Curtis (2013)		Action in response unethical behavior					***CP*** of organizational effectiveness is associated with **INC**	Auditors are more likely to report unethical behavior of peers than supervisors (CON); more willing to report superiors when the organization is responsive (**INC**).
Taylor & Curtis (2018)	Firms' expectations for efficiency		Mentor relationship quality				***CP*** of a caring ethical culture result from high-quality mentoring (**TR**)	Whistleblowing intentions (CON) are associated with ethical culture (***CPs***) and high-quality mentoring (**TR**); mediated by trust and organizational commitment.
McManus & Subramaniam (2009)			Mentoring style; career development or social support				***CP*** of peers' ethical conduct is positively associated with both mentoring styles (**INC**)	Higher ethical evaluations (CON) associated with ***CP*** of peer ethical conduct, greater career mentoring but lower social support mentoring (**TR**).
Robertson, Stefaniak, & Curtis (2011)	Managers' encouraging engagement environment	Performance evaluation				Whistle-blowing hotline	***CP*** of the professional repercussions of not reporting an unethical act are a stronger influence than the impact to ***INC***.	Auditors are more likely to report questionable acts (CON) of a less likable (**TT**), poor performing (**INC**) supervisor; more likely to whistle-blow internally and through non-anonymous outlets (*OSP*).

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Panel E. Auditor Work Attitudes								
Cohen, Dalton, & Harp (2017)	Partners' support for skeptical behavior	Performance evaluations		Scheduling audit work and audit budgets		Promotion policies	***CP*** of organizational support is driven by **TT**, **INC**, **RES, and** *OSP*	Lower organizational citizenship behavior and higher turnover intention (CON) associated with less partner support for skeptical behavior (**TT**) and lower ***CP*** of organizational support.
McManus & Subramaniam (2014)	Management does not tolerate unethical behavior	Success is influenced by ethical decisions	Mentoring style; career development or social support				***CP*** of the organization's ethical culture is driven by **TT** and **INC**	Greater organizational and professional commitment (CON) associated with career development mentoring (**TR**) and an ethical culture (***CP***); social support mentoring (**TR**) results in lower professional commitment (CON).
Shafer (2009)	Expectations set by firm leadership	Incentives for career success				Compliance with policies and procedures; ethical code	***CP*** of the organization's ethical culture is driven by *OSP***, INC** and **TT**	Organizational-professional conflict and organizational commitment (CON) are associated with ***CP*** of ethical culture.
Shafer, Poon, & Tjosvold (2013)	Expectations set by firm leadership	Incentives for career success				Compliance with policies and procedures; ethical code	***CP*** of the organization's ethical culture is driven by *OSP*, **INC** and **TT**	Organizational-professional conflict and organizational commitment (CON) are associated with ***CP*** of ethical culture; moderated by professional commitment.
Herda & Lavelle (2011)	Firms' support of its employees						***CP*** of organizational fairness and organizational support, reinforced by leadership (**TT**)	Post-employment citizenship (CON) is influenced by organizational commitment (CON) which in turn affects auditors' ***CP*** of fairness and support.

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TABLE 3
Summary of Studies of Learning Culture and Knowledge Sharing

	Primary Embedding Mechanisms				***Secondary Mechanisms***		***Key Findings***	
	Tone at the top (TT)	**Incentives (INC)**	**Training (TR)**	**Resources (RES)**	**Org. design & structure (*ODS*)**	**Org. systems & procedures (*OSP*)**	**Cultural Perceptions (*CP*)**	**Consequences (**CON**)**
Panel A. Learning from Outside the Engagement Team: Systems, Specialists, and Other Teams								
Curtis & Payne (2008)	Partner encourages implement-tation			Budget horizon		New support system		Voluntary implementation (CON) of a new system (*OSP*) is positively associated with **TT** and **RES.**
Lin & Fan (2011)	Encouraging system use					Electronic knowledge repository (EKR)	Subjective norms encompass ***CP*** of informal rules and expectations that guide system use, and **TT**	Intentions for system use (CON) are associated with **TT** and ***CP***.
Dowling (2009)	Normative pressure from leaders to use a system appropriately		Engagement review process			Restrictive system design	***CP*** of consensus on appropriate system use is positively associated with **TT**	Appropriate system use (CON) is positively associated with ***CP***, **TR** and *OSP*.
Gold, Knechel, & Wallage (2012)						Firm policy on consulting with fraud experts		Likelihood of consulting (CON) is higher when firm policy mandates consultation (*OSP*) and fraud risk is high.
Asare &Wright (2018)	Support for consultation among senior team members			Costs and delays associated with fraud consultation			***CP*** of trust and teamwork is associated with a strong **TT.**	Effectiveness of fraud consultation (CON) results from effective teamwork (**TT** and ***CP***), but the specialist's procedures increase cost and delays (**RES**).
Bauer & Estep (2019)	Leaders' support of "one team", vs. specialists as a "necessary evil"			Costs of engaging IT specialists ("budget-suck")			Variation between auditors and specialists in ***CP*** of culture as "one team" or "two team"	Effective team communication and coordination (CON) requires a strong relationship between auditors and IT specialists (***CP***) and is impacted by negative **TT** and **RES**.

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Smith-Lacroix, Durocher, & Gendron (2012)	Partners' trust in the specialists		Auditors lack knowledge to understand and question experts	Costs of employing fair value specialists			***CP*** of audit partner power and role are affected by use of specialists which is influenced by the EMs mentioned	Achieving target assurance (CON) requires greater reliance on specialists, changing the partner's role to a mobilizer of experts (***CP***); higher **RES** strain the auditor-auditee relationship.
Griffith (2019)	Partners' trust in the specialists	Specialists are rewarded more for advisory than audit work	Auditors lack of fair value knowledge			Large audit firms have guidelines on when the use of specialists is required	***CP*** of auditors' control ("jurisdictional threat) is affected by use of specialists, influenced by the EMs mentioned	Achieving target assurance (CON) requires greater reliance on specialists; yet auditors' desire to maintain control (***CP***) results in incomplete acceptance of their work.
Seavey Imhoff, Westfall, (2018)	Partner-to-partner knowledge sharing (KS)	Role of KS in evaluating partners	Role of training sessions in KS		Geographical distance between offices		***CP*** of expectation of KS between offices of a firm is perceived to be linked to **TT**, **INC**, **TR**	Restatements and accruals (CON) are lower for when audit offices are closer in proximity (*ODS)*.
Beck, Gunn, & Hallman (2019)	Office management quality	Partner compensation plans		Budget and financial performance	Geographical distance between offices		Tendency for partners in outlying offices to feel isolated ("Lone Rangerism")	Restatements and accruals (CON) are lower when audit offices are closer in proximity (*ODS*).
Panel B. Learning Within the Engagement Team								
Gronewold & Donle (2011)	Leadership support for learning from errors		Error management training				***CP*** of organizational error climate (OEC) is associated with training received from others (**TR**)	Better handling of own errors (CON) is associated with a positive error climate (***CP*** and **TR**); indirectly affecting handling of client errors.
Seckler, Gronewold, & Reihlen (2017)	Supervisors' demands/ expectations		Learning/ development plan; training, review and feedback		Organizational structure (e.g., geographical location, service line)	Quality and risk management systems		Resilient practices for handling errors (CON; e.g., "cool-headed" management of errors) is associated with the EMs mentioned.

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Gronewold, Gold, & Salterio (2013)	Leaderships' support for open error management climate (EMC)	Performance evaluations do not penalize for errors corrected	Coaching focuses on learning from errors				***CP*** of open EMC results from a complex manipulation of **TT**, **INC**, and **TR.**	Belief that another auditor will report an identified error (CON) increases with an open EMC (***CP***).
Gold, Gronewold, & Salterio (2014)	Leadership signals support for open EMC	Performance evaluations do not penalize for errors corrected	Coaching focuses on learning from errors				***CP*** of open EMC is associated with **TT**, **INC**, and **TR** (consistent with Gronewold et al. 2013).	Auditors' willingness to report their own mechanical errors and the likelihood of reporting a peer's error (CON) increase with an open EMC (***CP***).
Emby, Zhao, & Sieweke (2019)	Seniors' discussion of their own errors		Errors as a learning tool are appreciated					Subordinate thinking about errors and communication of errors (CON), is positively associated with **TT**.
Stefaniak & Robertson (2010)	Supervisors' reaction to prior errors	Performance evaluation						The belief that another auditor will admit mistakes (CON) is lower when there is a prior negative **TT**.
Nelson, Proell, & Randel (2016)	Team-oriented leadership; partner's concern for effectiveness vs. efficiency							Speaking up (CON) is more likely when leaders are team-oriented (**TT**) and issues are aligned with supervisor's audit effectiveness concerns (**TT**).
Nelson & Proell (2018)	Partners' concern about audit effectiveness vs. efficiency	Performance evaluation						Performance evaluation assessments (**INC**) are higher for auditors who speak up (CON), especially when the issue aligns with team focus (**TT)**.
Kadous, Proell, Rich, & Zhou (2019)	Supervisors' emphasis on intrinsic vs. extrinsic goals							Willingness to raise issues (CON) is associated with intrinsic motivation and leaders who emphasize intrinsic goals (**TT**).

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Panel C. Learning Through Engagement Review, Feedback and Performance Evaluation								
Westermann, Bedard, & Earley (2015)	Supervisors' espoused norms through the apprentice-ship model	Performance evaluation system does not reward coaching	Formal training vs. on the job learning (OTJL); review process	Resources available for learning & development			Norms and expectations surrounding learning (***CP***) are influenced by the EMs mentioned	Auditors acquire technical knowledge (CON) through OTJL (**RES)**, resulting from review and coaching from supervisors in a hierarchical process (**TR**).
Cameran, Ditillo, & Pettinicchio (2018)			Opportunity for on-the-job learning			Staff allocation to engagements		Earnings quality (CON) is lower when more engagement hours are allocated to experienced staff (*OSP*), due to less learning opportunity (**TR**).
Andiola & Bedard (2018)	Supervisor's emphasis on learning vs. performance goals		Feedback process focused on negative vs. positive comments				Subordinates' perceptions of best/worst review quality (***CP***) are influenced by the EMs noted	Attitude toward the coaching relationship (CON) declines with more negative feedback (**TR**) when supervisors use performance goal framing, but not when the supervisor emphasizes learning goals (**TT**).
Andiola, Bedard, & Westermann (2019)	Supervisor's tone of the review environment	Performance evaluation system does not reward coaching	Level of guidance provided in reviews	Insufficient resources to support good coaching			Subordinates' perceptions of best/worst review quality (***CP***) are influenced by the EMs noted	Audit inefficiency and ineffectiveness (CON) associated with worst reviews.
Dalton, Davis, & Viator (2015)			Effective mentoring				Supervisory feedback environment (SFE);	Lower job satisfaction, organizational commitment and higher turnover intentions (CONs) are associated with unfavorable SFEs (**TR**), moderated by an effective mentor (**TR**).

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TABLE 4
Summary of Main Findings and Questions for Future Research

Type of Culture	*Main Findings*	*Proposed Research Questions*
Panel A. Professionalism/ Commercialism	• Many studies imply a dominant tone of commercialism in auditing, driven by a marketing perspective and reinforced through tone at the top, incentives and budgetary control. • The negative effect of commercialism increases with economic incentives. • Client focus (affinity; identification) is associated with lower audit quality. • Some studies imply that audit partners vary in client affinity, with AQ consequences. • Use of client satisfaction surveys is not found to result in greater client affinity or lower audit quality. • The negative impact of client focus/affinity can be reduced by changes in the audit process and performance evaluations. • Auditors have a strong emotional response to EMs imposed to support the commercial ethos (e.g., tight budgets and requirements to work long hours). • Some recent research suggests that commercialism can co-exist with professional values. • Research on commercialism in Big 4 vs. non-Big 4 firms is mixed, with several studies noting more client or commercial focus among Big 4 personnel, while others imply behavior more consistent with audit quality.	• Can professionalism co-exist with commercial values without sacrificing audit quality? How should EMs be aligned to achieve an appropriate balance between the two? How would such co-existence affect consequences such as audit quality, audit pricing, competition, attracting and retaining talent, and the perceived and actual value of the audit from different perspectives (e.g., client, investors, stakeholders)? • Is there variation in the level of professionalism and/or commercialism within and across firms? If so, what are the EMs associated with this variation and how does this impact audit quality? • Which audit firms rely on client surveys, and how are they used? Does their use vary across firms in a network? When audit firms use client surveys, are they optional for offices, or required? • Studies could use public data on partners to look for patterns in the relation between non-audit services and AQ at the individual engagement level. • How do differing affective responses to values of professionalism or commercialism impact AQ? • Some studies describe new auditors as internalizing the commercial ethos, while others find they experience conflict and fear. Do both reactions exist in practice, and if so, how and why? Further, is there an association of these individual differences with behaviors indicative of audit quality?
Panel B. Ethical Culture	• Tone at the top established by firm leadership drives auditors' perceptions of ethical culture. • The tone set by partners (e.g., guidance, openness, and support for skepticism) in fraud brainstorming affects the quality of brainstorming session processes and outcomes, as well as knowledge development. Partner tone has a greater impact on less experienced auditors. • Studies on auditing estimates show that partner support and ethical codes increase auditor skepticism, while partner obedience pressure and failure to reward skeptical behavior decrease audit quality. • Quality-threatening behaviors are reduced with focus on users' needs and social responsibility, but increase with client desirability and partner obedience pressure.	• Most studies measure ethical perceptions at the firm level. Future research could consider whether and how those perceptions differ across offices/teams within the same firm (potentially driven by difference in tone at the top). • When auditors perceive that ethical culture at the firm or office level conflict with the engagement environment, which force is stronger? • Further research exploring the interactions of multiple EMs could advance understanding and guide audit firms in establishing ethical cultures. • Changes in the profession in the past decade (e.g., increased regulatory risk; greater use of electronic workpaper systems) motivate revisiting research on the incidence of various QTBs,

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	• Studies confirm that whistleblowing intention is driven by weighing costs/benefits of reporting, informed by perceptions of firm ethicality set by leadership, prior actions if leaders, mentoring focused on career development and perceived repercussions for not reporting. • Lower organizational commitment and higher turnover intention are associated with tone; e.g., management's tolerance for unethical behavior lack of support, tight budgets, and lack of reward for skepticism. • Greater organizational-professional conflict results from an egoistic culture (i.e., emphasis on auditors following their own beliefs). • Studies examining contingent factors show limits of the impact (e.g., client desirability). • Studies in our sample imply a strong role of informal training by supervisors and mentors in instilling ethical behavior. • Studies comparing audit firm size find large firms have higher perceptions of ethical culture and lower intentions to engage in unethical behavior; but lower partner support for skepticism.	varying perceptions of ethicality of QTBs, and auditors' beliefs that QTBs will not be detected. • Are there differences in the EMs that affect whistleblowing intentions versus action? Future research could investigate (e.g., through experiential survey) what determinants and consequences of blowing the whistle in today's environment? • Sample studies on ethical culture related to audit processes consider only fraud brainstorming and skepticism, and research on other processes prior to 2008 is dated. Future research should examine other phases of the audit in which ethical culture might play a role. • While Jenkins et al. (2008) reviewed research on formal ethics training in firms/classrooms, subsequent studies imply a strong role of informal training by supervisors and mentors. Research should investigate (e.g. through experiential surveys) specific ways in which audit coaches and mentors instill ethical behavior. • Few studies compare ethical culture by firm size during our sample period, and results are mixed. Given changes in the auditing environment over the past decade, further research could explore whether ethical culture perceptions differ by firm size, factors driving those differences, and their consequences.
Panel C. Culture of Learning	• Leaders' tone at the top affects learning in many ways; e.g., appropriate use of systems, effectiveness of consultation, turnover intention. • Within teams, tone affects how auditors consider/report their own and others' errors, and whether they "voice" knowledge. • Some factors limit the influence of tone; e.g., power struggles with specialists. • Auditors benefit from consulting with peers and specialists, yet they remain resistant in part due to their desire to maintain control over the audit. • Outcomes improve when auditors share knowledge of their past experiences, and when they share knowledge across offices. • The engagement is the key learning environment yet there remains variation in the EMs and cultural perceptions at this level. • Subordinates are more accepting of negative feedback when the review process is focused on learning. • Learning is enhanced through performance evaluation systems that appropriately balance specialists' work on audits versus consulting, reward good coaching and knowledge sharing, and do not penalize staff for mistakes acknowledged or errors corrected.	• Do auditors at different ranks (staff through partner) perceive the learning culture of their organizational units differently? If so, what are the mechanisms driving these differences, and what are their consequences? • How do more structured EMs such as incentives/rewards (e.g., performance ratings systems) and resources interact with less structured EMs such as partners' praise? • What impact have changes in the audit environment (e.g., distanced learning) had on firms' learning culture? • Firms' quality control systems now consider firm-wide learning from inspection outcomes. How do such programs enhance a learning culture, or possibly harm it (e.g., from strict enforcement or a zero-tolerance approach)? • What are the driving forces behind differences in perceived learning culture at the engagement/supervisor level? Does this variation result from poor communication from firm leadership? • To what extent does learning across engagements occur, and how does it occur (formally or informally)? E.g., is it driven by auditors who move across teams and carry over best practices?

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		• How do cultural differences across service lines (e.g., audit and consulting) impact the effectiveness of the learning culture?
Panel D. Summary Issues and Research Questions	• Few studies compare within and across the three phases of the model; thus, inferences about the influence of certain EMs on audit quality are limited. • Research in the past decade increasingly focuses on the influence of office or engagement team culture; variation among these levels implies that organizational culture is less than widely shared. • Limited studies compare across multiple firms; most but not all show better AFC for Big 4 over smaller firms. Study of differences within firm size classes is very rare, yet individual firms likely have differing approaches to embedding AFC.	• Future research should use our theoretical framework to design studies including multiple EMs and/or multiple phases of the model, to improve understanding as to how firm leadership can strive for a desired culture through conditions under their direct control. • It is unclear from extant research on how much EM "support" is needed to ensure AQ. Some studies combine EMs together into a single measure, and others choose a single one while not mentioning others or holding them constant. This constrains our ability to be able to see whether one EM matters more than another. • Research should continue to examine to what extent is there significant variation in AFC between firms, within firms across offices and across engagements. What EMs differ, why do such differences exist, and how can audit firms promote more alignment? • How do firm manage how tone at the top is established at the office and engagement levels? • To what extent do auditors perceive that other EMs are complementary or contradictory with tone at the top, and what is their relative influence on AQ?

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