

# Intuition in auditor's professional skepticism: Literature review<sup>1</sup>

*Intuição no ceticismo profissional do auditor: Revisão da literatura*

*La intuición en el escepticismo profesional del auditor: Revisión de la literatura*

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<https://doi.org/10.36428/revistadacgu.v15i28.636>

**Abstract:** This article discusses the use of intuition by auditors, exploring its relevance for fraud detection. Auditors are expected to exhibit professional skepticism, which includes a questioning mindset and critical evaluation of audit evidence, but there have been concerns about insufficient use in the practice. While intuition is considered a dangerous trait for auditors due to the risk of biased decisions, it is an essential driver of practice, particularly for risk decisions. Despite the initiatives of professional associations of accountants and auditors, governmental regulators, and international standardization organizations to enhance knowledge about auditors' professional skepticism, there is still a lack of practical guidance on the appropriate use and how to document it. Therefore, the research question is how intuition can be used in the audit process to enhance fraud detection. To address this question, the article provides a literature review of normative, practitioner, and academic production on the use of intuition by auditors as a cognitive approach. The article concludes that the academic literature is scarce, and the normative resistance to the concept by standard-setting organizations may be the cause. The tension between the necessity of sufficient and proper documentation and the exercise of professional skepticism creates a paradox for auditors. Practitioners' commissioned research on auditors' skepticism is essential to bridge the academic literature on intuition and the rule-making by professional and standard-setting organizations. The article proposes a research agenda for the categories: Incentives, Time, Mindset/Prompts, Environmental and Contextual Factors, Competence, and Traits, suggesting alternative research methods such as case studies of corruption and financial scandals. This contribution is essential for auditors, accounting professionals, regulators, and scholars interested in the audit process and enhancing auditors' professional skepticism.

**Keywords:** auditor, skepticism, intuition, decision-making, literature review.

1. Artigo submetido em 29/03/2023 e aceito em 16/08/2023.

Acknowledgment: I am grateful to Archibald de Araújo Silva, who co-authored a preliminary version of this article in the Decision Analysis under Uncertainty course, and to Professor Abraham Sin Oih Yu for his lessons, guidance, and encouragement.

**Resumo:** O artigo discute o uso da intuição pelos auditores, explorando sua relevância para a detecção de fraudes. Espera-se que os auditores exibam ceticismo profissional, que inclui uma mentalidade questionadora e avaliação crítica das evidências de auditoria, mas tem havido preocupações sobre o uso insuficiente na prática. Embora a intuição seja considerada uma característica perigosa para os auditores devido ao risco de decisões tendenciosas, ela é um direcionador essencial da prática, principalmente para decisões de risco. Apesar das iniciativas de associações profissionais de contadores e auditores, reguladores governamentais e organizações internacionais de padronização para aumentar o conhecimento sobre o ceticismo profissional dos auditores, ainda falta orientação prática sobre o uso apropriado e como documentá-lo. Portanto, a questão de pesquisa é como a intuição pode ser usada no processo de auditoria para aprimorar a detecção de fraudes. Para abordar esta questão, o artigo faz uma revisão da literatura normativa, prática e da produção acadêmica sobre o uso da intuição por auditores como uma abordagem cognitiva. O artigo conclui que a literatura acadêmica é escassa, e a resistência normativa ao conceito por parte de organizações normatizadoras pode ser a causa. A tensão entre a necessidade de documentação suficiente e adequada e o exercício do ceticismo profissional cria um paradoxo para os auditores. A pesquisa encomendada de profissionais sobre o ceticismo dos auditores é essencial para unir a literatura acadêmica sobre a intuição a criação de regras por organizações profissionais e de definição de padrões. O artigo propõe uma agenda de pesquisa para as categorias: Incentivos, Tempo, Mentalidade/Prompts, Fatores Ambientais e Contextuais, Competência e Traços, sugerindo métodos alternativos de pesquisa, como estudos de caso de corrupção e escândalos financeiros. Esta contribuição é essencial para auditores, profissionais da contabilidade, reguladores e estudiosos interessados no processo de auditoria e aumentar o ceticismo profissional dos auditores.

**Palavras-chave:** auditor, ceticismo, intuição, tomada de decisão, revisão de literatura.

**Resumen:** El artículo analiza el uso de la intuición por parte de los auditores, explorando su relevancia para la detección del fraude. Se espera que los auditores muestren escepticismo profesional, lo que incluye una mentalidad inquisitiva y una evaluación crítica de la evidencia de auditoría, pero ha habido preocupaciones sobre el uso insuficiente en la práctica. Aunque la intuición se considera un rasgo peligroso para los auditores debido al riesgo de decisiones sesgadas, es un impulsor esencial de la práctica, en particular para las decisiones arriesgadas. A pesar de los esfuerzos de las asociaciones profesionales de contadores y auditores, los reguladores gubernamentales y las organizaciones internacionales de estándares para aumentar el conocimiento sobre el escepticismo profesional de los auditores, aún falta orientación práctica sobre su uso adecuado y cómo documentarlo. Por lo tanto, la pregunta de investigación es cómo se puede utilizar la intuición en el proceso de auditoría para mejorar la detección del fraude. Para abordar este tema, el artículo revisa la literatura normativa, práctica y la producción académica sobre el uso de la intuición por parte de los auditores como enfoque cognitivo. El artículo concluye que la literatura académica es escasa y que la resistencia normativa al concepto por parte de las organizaciones normativas puede ser la causa. La tensión entre la necesidad de documentación suficiente y adecuada y el ejercicio del escepticismo profesional crea una paradoja para los auditores. La investigación comisionada de profesionales sobre el escepticismo de los auditores es esencial para unir la literatura académica sobre la intuición con la elaboración de reglas por parte de organizaciones profesionales y normativas. El artículo propone una agenda de investigación para las categorías: Incentivos, Tiempo, Mentalidad/Impulsos, Factores ambientales y contextuales, Competencia y Rasgos, sugiriendo métodos de investigación alternativos, como estudios de casos de corrupción y escándalos financieros. Esta contribución es esencial para los auditores, profesionales de la contabilidad, reguladores y académicos interesados en el proceso de auditoría y en aumentar el escepticismo profesional de los auditores.

**Palabras clave:** auditor, escepticismo, intuición, toma de decisiones, revisión de literatura.

## 1. INTRODUCTION

Auditors are expected to reach a decision or draw a conclusion through a logical, flexible, unbiased, objective, and consistent judgment process, balancing experience, knowledge, intuition, and emotion. (KPMG LLP et al., 2012).

They count on the professional skepticism present throughout the audit process, and particularly important when considering distortions derived from error or fraud risk. It is an attitude that includes a questioning mind and a critical assessment of the appropriateness and sufficiency of audit evidence (Conselho Federal de Contabilidade [CFC], 2009; Public Company Accounting Oversight Board [PCAOB], 2017; United States Government Accountability Office [GAO], 2011). It may be seen as a skill or state of awareness necessary to improve audit quality.

However, in the USA, 60% of the inspection actions by the Securities Exchange Commission - SEC against auditors between 1987 and 1997 involved insufficient use of professional skepticism. On the other hand, PCAOB informed that eight larger audit firms, between 2004 and 2007, presented problems partly by the non-application of reasonable skepticism (Plumlee et al., 2012).

Auditors' analytic, intuitive, or hybrid cognitive style interacts with the task type. Analytical auditors perform better on complex structural problems and precise routine work, while intuitive ones perform better on new or unstructured problems, often counting on insightful decisions (Fuller & Kaplan, 2004).

Insight is a lengthy process that remains incubated and, through experiential processing, ends in a sudden unexpected solution (Hogarth, 2001). While in the insight approach, the understanding of the logical explanation supporting a judgment is conscious, in intuition, it is not.

Intuition is the holistic, associative, fast, and affectively charged judgment (Dane & Pratt, 2007). It is the "smell test" that Joseph T. Well<sup>2</sup> argue leads to the auditor's dilemma "What do I do with this information?" (Zwirn, 2005, p. 1).

Intuitive judgment processes take place at System 1 (Khaneman, 2011) and are commonly associated with short-cuts, rules of thumb (i.e., heu-

ristics), simplifications, suboptimal judgments, or traps that might increase the risk of biased decisions (Gelbstein, 2016; KPMG LLP et al., 2012) due to individual bounded rationality (PCAOB, 2018). Therefore, intuition is considered "always a dangerous trait!" (International Accounting Standards Board [IASB], 2009, p. 8), justifying the development of system-based auditing and monitoring of projects to replace the practice of relying heavily on intuition (Ha, 2005).

However, intuition is a practice driver concerning, for instance, accounting measures and procedures such as impairment, fair value, expected cash flows, liabilities, and equity (Trott & Upton, 2001). Besides, despite not fitting a quantitative risk model, it is a critical ingredient in the decision-making recipe for risk decisions (Dubsky, 2016). Furthermore, intuition is within personal characteristics that are becoming more important for auditors, together with experience and skill in coding and data analytics (Hamm, 2018). Education, training, experience, social situations, and innate senses are sources for building the structures of subconscious values, which merge to create evaluative feelings about auditing evidence (Wolfe et al., 2014). It does not replace the analytical processing in the auditing process. Nevertheless, learning to use and trust intuition in the evidence evaluation process may increase the auditor's skepticism (Wolfe et al., 2014).

Notwithstanding the initiatives of professional associations of accountants and auditors, governmental regulators, and international standardization organizations to enhance the knowledge about auditors' professional skepticism, there is still a lack of practical guidance around the appropriate use and how it can be documented (Glover & Prawitt, 2014). To help fill this gap, this research investigates how intuition can be used in the audit processes to help fraud detection.

It is a literature review of the normative, practitioners, and academic production aiming at finding how legal and technical rules that regulate the professional behavior of auditors, their skills, and the result of their job consider the use of intuition as a cognitive approach in all phases of the audit process.

We expect to contribute to auditors' skepticism literature as a reference outside the USA, as Brazel and Schaefer (2015) suggested, bringing the intuition concept as an aspect of interest for the audi-

2. Former special agent of the U.S Federal Bureau of Investigation (FBI), specialized in white-collar crime, founder and chairman of the board of the Association of Certified Fraud Examiners - ACFE.

tors' professional behavior study. Besides, we hope to add to the broad literature on integrating intuition and rationality with a different type of professional, as (Calabretta et al., 2017) suggested.

The rest of this paper is organized as follows: in the next section, we describe the literature search steps. Then, we present the literature review and discuss the main findings, concluding by proposing a research agenda.

## 2. METHODOLOGY

We carried out a scoping review to provide an initial indication of the potential size and nature of available literature on the auditors' intuition theme, taking three kinds of sources: normative or regulatory professional codes of conduct, reports, and commissioned white papers by government agencies and professional organizations of accountants, auditors, and independent standard-setting boards, and the academic literature. Then, we critically reviewed the primary references, highlighting problems and gaps in the existing knowledge about the subject (Paré et al., 2015).

The first source for reviewing the normative or regulatory professional codes of conduct was the International Standards on Auditing (ISA), issued by the International Auditing and Assurance Standards Board (IAASB), which are generally accepted worldwide. However, they do not override local laws or regulations (International Auditing and Assurance Standards Board [IAASB], 2021). The second source was the Brazilian Federal Accounting Council (CFC), the agency responsible for ruling the Brazilian Accounting Standards aligned to international ones. The last one was the Brazilian Supreme Court of Audit (TCU), the highest-level office in Brazil that guides concepts and procedures for government audit activity over public administration. The Court's rules, technical manuals, and jurisprudence are necessary professional references for internal auditors.

The reports and commissioned white papers we searched in government and professional organizations of accountants, auditors, and independent standard-setting boards web pages, taking "intuition" as the keyword. This procedure covered a total of twenty organizations, listed in Table 1.

**TABLE 1. GOVERNMENT AND PROFESSIONAL ORGANIZATIONS OF ACCOUNTANTS, AUDITORS, AND INDEPENDENT STANDARD-SETTING BOARDS CONSULTED**

ORGANIZATION	WEB SITE
The International Federation of Accountants (IFAC)	<a href="https://www.ifac.org/">https://www.ifac.org/</a>
The International Auditing and Assurance Standards Board (IAASB)	<a href="https://www.iaasb.org/">https://www.iaasb.org/</a>
The International Accounting Education Standards Board™ (IAESB™)	<a href="https://www.iaesb.org/">https://www.iaesb.org/</a>
The International Ethics Standards Board for Accountants® (IESBA®)	<a href="https://www.ethicsboard.org/">https://www.ethicsboard.org/</a>
The Institute of Internal Auditors (IIA)	<a href="https://na.theiia.org/Pages/IIAHome.aspx">https://na.theiia.org/Pages/IIAHome.aspx</a>
The American Institute of Certified Public Accountants (AICPA)	<a href="https://www.aicpa.org/">https://www.aicpa.org/</a>
The Financial Accounting Standards Board (FASB)	<a href="https://www.fasb.org/home">https://www.fasb.org/home</a>
The Governmental Accounting Standards Board (GASB)	<a href="https://www.gasb.org/home">https://www.gasb.org/home</a>
The American Accounting Association (AAA)	<a href="http://aaahq.org/">http://aaahq.org/</a>
The International Financial Reporting Standards® (IFRS Foundation)	<a href="https://www.ifrs.org/">https://www.ifrs.org/</a>
The International Accounting Standards Board (IASB)	<a href="https://www.ifrs.org/groups/international-accounting-standards-board/">https://www.ifrs.org/groups/international-accounting-standards-board/</a>
The Financial Reporting Council (FRC)	<a href="https://www.frc.org.uk/">https://www.frc.org.uk/</a>
The Public Company Accounting Oversight Board (PCAOB)	<a href="https://pcaobus.org/">https://pcaobus.org/</a>
The Committee of Sponsoring Organizations of the Treadway Commission (COSO)	<a href="https://www.coso.org/SitePages/Home.aspx">https://www.coso.org/SitePages/Home.aspx</a>
ISACA	<a href="https://www.isaca.org/">https://www.isaca.org/</a>
Association of Local Government Auditors (ALGA)	<a href="https://algaonline.org/">https://algaonline.org/</a>
The International Organization of Supreme Audit Institutions (INTOSAI)	<a href="http://www.intosai.org/news.html">http://www.intosai.org/news.html</a>
The Brazilian Supreme Court of Audit (TCU)	<a href="https://portal.tcu.gov.br/inicio/">https://portal.tcu.gov.br/inicio/</a>

ORGANIZATION	WEB SITE
The United States Government Accountability Office (GAO)	<a href="https://www.gao.gov/">https://www.gao.gov/</a>
The Brazilian Federal Accounting Council (CFC)	<a href="https://cfc.org.br/">https://cfc.org.br/</a>

The academic literature we searched on the Web of Science database, core collection, which includes accounting and audit top-ranked journals, taking the keywords “auditor” and “intuit\*” as the search string on the topic fields (title, abstract, and authors’ keywords). The time range was from 2012 to 2021.

In the following section, we present the findings separating the normative rules and professional standards analysis from the practitioners’ contributions and the academic forefront.

### 3. LITERATURE REVIEW

#### 3.1. Normative boundary

The ISA 200, which gives the overall objectives of independent auditors and the conduct of an audit, points out the necessity of sufficient and proper documentation to support the auditor’s opinion, which may lead to a conflict with a qualitative evaluation. This antagonism is in the essence of the concept of professional judgment, once the required objectivity conduct of the auditor is all the time working together with the so-called professional skepticism, which is “an attitude that includes a questioning mind, being alert to conditions which may indicate possible misstatement due to error or fraud, and a critical assessment of audit evidence” (IAASB, 2021, p. 54).

We did not find the word “intuition” in any of the three volumes of the ISA 200 handbook. Otherwise, we found the term “insight” a few times, mainly when regulating the auditor’s responsibility relating to fraud in an audit of financial statements. (IAASB, 2021).

Similarly, CFC approved the Brazilian accounting standard NTBC TA 200 (CFC, 2016), reprodu-

cing ISA 200 standard. Therefore, professional skepticism is again described as an auditor’s necessary skill for critically evaluating the reliability and sufficiency of auditing evidence, minimizing the risks of overlooking possible fraud. The standard does not mention auditors’ intuition as a possible decision-making process through which skepticism could be manifested.

Regarding TCU, the search for “intuition” on the court web page showed no result related to auditors’ cognition. The term was found in some judgments of the court describing the context of the behavior of public administrators. Sometimes, as expected behavior. Other times, as an unacceptable one.

91. For me, **even by intuition**, it would be possible for those responsible - technical experts and signatories of the agreements - to foresee [...] (Tribunal de Contas da União [TCU], 2013, p. 84).

[...] it can not be considered regular a direct contracting not preceded by the specific procedure as determined by law. **Not by intuition**. The regularity must be documented, and the administrator has the burden to present the documents for such purpose (TCU, 2017, p. 35).

#### 3.2. Practitioners skepticism push

Turning to the gray literature, we found that most results were within commissioned research projects about auditor professional skepticism listed in Table 2. The starting point was a paper from Nelson (2009) that motivated a series of initiatives of the organizations promoting the studies.



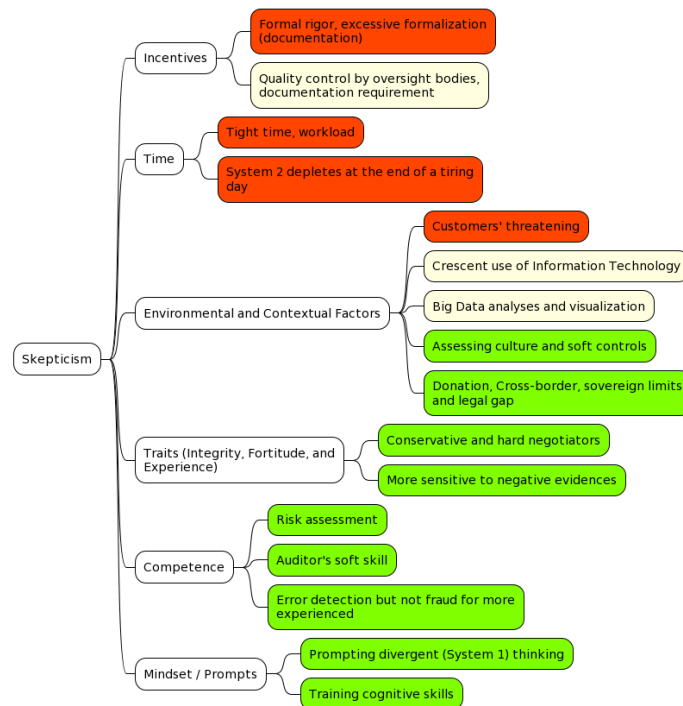
**TABLE 2. COMMISSIONED LITERATURE REVIEW ABOUT AUDITORS' SKEPTICISM**

REFERENCE	COMMISSIONED BY
Professional Scepticism: Establishing a common understanding and reaffirming its central role in delivering audit quality (Auditing Practices Board, 2012).	FRC/APB
Research on Auditor Professional Skepticism: Literature Synthesis and Opportunities for Future Research (Hurt et al., 2013)	AAA/PCAOB
Enhancing auditor professional skepticism: The professional skepticism continuum (Glover & Prawitt, 2014)	GPPC <sup>(a)</sup>
Executive Summary: State of the Art Research Related to Auditor Professional Skepticism (2013 – 2015) (Brazel & Schaefer, 2015)	IFAC/IAASB
The Outcome Effect and Professional Skepticism (Brazel et al., 2016)	IFAC/IAASB/IESBA/IAESB
IAESB Task Force Report on Professional Skepticism (Ramamoorti et al., 2017)	IAESB
Professional Skepticism Literature Review Part 1 - Unconscious Bias and Professional Skepticism (Gammie, 2018)	IAESB

Note: (a) The Global Public Policy Committee - GPPC is a working group that comprises the six largest international audit networks—(BDO, Deloitte, EY, Grant Thornton, KPMG, and Pw)

The IFAC/IAASB project summarizing academic research about auditor professional skepticism from 2013 to 2015 (Brazel & Schaefer, 2015) results from IFAC's initiative to create a Work Group responsible for developing a plan to implement the new and revised standards for the Auditor Report. The authors described six categories under significant themes proposed by the Working Group. Taking this structure, we updated the main arguments observed in this piece of literature, illustrating in Figure 1 those that hamper the skepticism (red) from those that encourage it (green) and those which spark controversy (yellow).

**FIGURE 1. MAIN ARGUMENTS OBSERVED IN THE PRACTITIONERS' LITERATURE IN EACH CATEGORY THEME(A) ON PROFESSIONAL SKEPTICISM.**



Note: (a) Based on Brazel and Schaefer (2015)

The Incentives category involves the skeptical behavior within managers' performance evaluation of auditors. In other words, how auditors are rewarded or penalized because of the use, or not, of professional skepticism. Incentives research also raises questions about reasons for pressure increase or decrease over the auditor's professional skepticism. Westermann et al. (2014) suggest that the quality control of the audit process, like inspections from PCAOB, would induce a more skeptical behavior of auditors, while excessive formalization (documentation) requirements would lead to defensive behavior. Other authors consider that the formal rigor imposed by the profession's code of conduct and by the oversight bodies can inhibit the use of skepticism by the auditor, possibly overlooking relevant audit risks (Glover & Prawitt, 2014), crowding out helpful, intuitive knowledge structures (Hawkins et al., 2020).

The Time theme, or the workload, concerns the higher pressure on time that may limit the auditor's work length, impacting his/her professional skepticism and auditing quality (Lambert et al., 2016; Persellin et al., 2019; Westermann et al., 2014). System 2 process thinking (Khaneman, 2011) may be depleted at the end of a tiring working day when auditors are more likely to make intuitive errors (Raval & Sharma, 2020).

Another category described by Brazel and Schaefer (2015) concerns the impact of the environment and context aspects on the auditors' professional skepticism. A negative impact is observed when auditors avoid contact with their managers due to customers' threatening (Bennett & Hatfield, 2015), jeopardizing auditors' independence.

A concern of the same negative effect was expressed by auditor firms partners due to the crescent use of Information Technology that may lead to a reduction in the use of professional skepticism since the auditor does not learn how "to read people", to think critically and to look for responses by himself (Westermann et al., 2015, p. 893). A conclusion that is not entirely supported by Rose et al. (2017, p. 85), who argue that the benefits of Big Data analyses and visualization in the audit as a matter of timing and related to the "[...] capacity of the data to create conflict, activate skepticism, and produce judgments that combine intuition and deliberative reasoning". Likewise, Mallur (2020) suggests using machine learning algorithms in cybersecurity risk assessment,

including assessors' concerns by intuition, insight, and expertise to predict risk severity. Therefore, auditors must trust in their intuition to assess culture and soft controls that are less tangible than hard controls (Owens et al., 2018).

In the same way, auditors working beyond the territorial limits of their national law and standards, as in the case of cross-border funding, must respect the unique characteristics of the organization being audited. In this context of international law barriers and lack of guidelines, they are expected to "...apply their intuition, imagination, wisdom, gut instinct, and—above all—alertness and vigilance to recognize deception and ensure regularity and rationality in the use of funds" (Hsing, 2006, p. 16).

Another theme studied deals with professional skepticism as a trait of the auditor's personality instead of looking at it strictly as an answer to the auditing circumstance. Auditors with a higher level of skepticism would be more conservative and hard negotiators (Brown-Liburd et al., 2013). According to Wolfe et al. (2014), intuitive processing makes auditors more sensitive to negative evidence. On the other hand, when burdening or eliminating the intuitive process, the analytical process makes auditors focus on more common evidence. When negative evidence contradicts evidence mostly common in auditing, auditors who use intuitive processes are expected to be more skeptical than auditors who use analytical processes.

Two categories of themes seem closer to the intuition study. First is professional skepticism as a competence for specific activities such as tracking fraud. The second concerns the change in the auditor mindset caused by a prompt that would increase professional skepticism.

The level of skepticism emphasis given by the auditor (high versus average) makes audit managers identify with more effectiveness and efficiency the risk of fraud and the selection of relevant audit test procedures (Carpenter & Reimers, 2013). The capability to track fraudulent trends based on personality would be a "soft skill" that is part of the adequate application of the auditor's professional skepticism (Cohen et al., 2017). However, in an experiment with practicing auditors, Hawkins et al. (2020) suggest that more experienced auditors develop helpful intuition related to misstatements caused by error but not fraud.

A possible explanation for why auditors fail to exercise professional skepticism is that they are not trained to have a thinking process that would take them to demonstrate a questioning mindset so that they would not be satisfied with less persuasive evidence (Plumlee et al., 2012). The authors studied training auditors' use of their cognitive skills to improve the level of professional skepticism in their judgments. For that, they presented two concepts - divergent and convergent thinking - which seem to describe System 1 and System 2 thinking processes (Khaneman, 2011) within the auditing context.

Divergent thinking is part of professional skepticism through which the auditor thinks about various plausible explanations for an uncommon finding, using clues and connections among available information, without a strict and explicit effort to guarantee that each explanation is logically valid in light of other findings and evidence. Then, the auditor uses convergent thinking to test the plausible explanations generated. The combined use of divergent and convergent thinking produces different ideas and solutions. (Plumlee et al., 2012). The authors propose a training job based on two assumptions. The first one is that professional skepticism, as the auditing norms require, may be represented through a diagnostic reasoning process incorporating divergent and convergent thinking. The second assumption is that this diagnostic reasoning process may be translated "in a set of cognitive skills which can be trained so that auditors can use them

to execute in a professionally skeptical manner" (Plumlee et al., 2012, p. 12)

### 3.3. Academic frontier

Let us now turn to academic peer-reviewed literature. We searched on the Web of Science database, using "auditor" and "intuit\*" and found 22 articles from journals and conferences published from 2012 to 2021. Reading the abstracts, and some of the introduction and conclusions, we eliminated sixteen studies that do not address the research question. They had the keywords searched for. However, the term "intuit\*" was used as an adjective or adverb (e.g. intuitive, intuitively, counter-intuitively) to qualify something, a situation, or some findings not related to the auditor's intuition (e.g., ethical dilemmas, anticorruption compliance risk, buyers' audit, audit firm rotation, reputational implication after audit failure).

Table 3 presents the six papers that remained in our final sample summarizing the phenomenon focused on the paper, the background related to intuition, the methodological approach, the object of interest based on Brazel and Schaefer's (2015) classification, the main findings or conclusion, and relevant research agenda.

In the following section, we discuss the main findings integrating the three pieces of literature to conclude with a research agenda.



**TABLE 3. OVERVIEW OF THE FINAL ACADEMIC LITERATURE SAMPLE ON AUDITOR INTUITION**

TITLE	WHEN SHOULD AUDIT FIRMS INTRODUCE ANALYSES OF BIG DATA INTO THE AUDIT PROCESS?	US AUDITORS' PERCEPTIONS OF THE PCAOB INSPECTION PROCESS: A BEHAVIORAL EXAMINATION	MANAGING CONFLICT OF INTERESTS IN PROFESSIONAL ACCOUNTING FIRMS: A RESEARCH SYNTHESIS
Authors	Rose, Anna M.; Rose, Jacob M.; Sanderson, Kerri-Ann; Thibodeau, Jay C.	Johnson, Lindsay M.; Keune, Marsha B.; Winchel, Jennifer	Ishaque, Maria
Journal	Journal of Information Systems	Contemporary Accounting Research	Journal of Business Ethics
The phenomenon focused	The use of an intuitive processing mode compared to a deliberative processing mode by auditors in Big Data visualizations.	Auditors' observations of the oversight (PCAOB) inspection process and its impact on their work.	Conflict of interests in professional accounting firms.
Background	Intuitive versus deliberative evidence processing influences auditors' use of Big Data visualizations.  Decision-makers are better able to recognize evidence that does not conform to expectations when they employ intuitive processing rather than deliberative	Auditors' perceptions of regulatory power and trust in the regulator can consciously or subconsciously impact compliance behavior.	A framework integrating the Risk Management Framework by ISO 31000:2009 and the International Code of Ethics for Professional Accountants.
How they addressed the question /What they did	Empirically. Experiment with 127 senior auditors from two Big 4 firms  2 x 2 between-subjects full-factorial - auditors' processing mode (Intuitive x Deliberative) and the order in which Big Data visualizations are presented (Before x After analytical procedures).	Empirically. Twenty interviews with experienced auditors using a framework proposed by other authors.	Literature review
Brazel and Schaefer's (2015) thematic categories	Traits  Mindset / Prompts	Incentives  Environmental and Contextual Factors	Environmental and Contextual Factors  Traits
Main findings/ conclusion	Big Data visualizations used as evidential matter have fewer benefits when viewed before auditors examine more traditional audit evidence.  Intuitive processing should enhance professional skepticism and improve auditors' ability to recognize and identify threats.	Auditors with excessive focus on reducing inspection oversight risk could lead to lower audit quality due to hindrance to a mindful exercise of professional judgment directed at risks of material misstatement.	For effective management of conflict of interests, behavioral interventions should be informed by the professionals' unconscious (automatic) and conscious (controlled) cognitive processes.
Future research	-	Study other aspects of the U.S. audit regulation at the audit firm or industry level of analysis.	Operation of conflict of interests at the level of an individual accounting professional.

TITLE	INTUITION VERSUS ANALYTICAL THINKING AND IMPAIRMENT TESTING	APPLICATION OF THE ANP AND FUZZY SET TO DEVELOP A CONSTRUCTION QUALITY INDEX: A CASE STUDY OF TAIWAN CONSTRUCTION INSPECTION	REDEFINING THE ACCOUNTANT'S PERSONALITY: SUCCESS OR STAGNANCY?
Authors	Wolfe, Christopher J.; Christensen, Brant E.; Vandervelde, Scott D.	Fan, Ching-Lung	Wetmiller, Rebecca J.; Barkhi, Reza
Journal	Contemporary Accounting Research	Journal of Intelligent & Fuzzy Systems	Accounting Research Journal
The phenomenon focused	The use of intuition versus analytical thinking in auditor risk assessment	Construction quality subjective evaluation	Differences in the traditional personality traits and cognitive styles associated with an accountant
Background	<p>Baylor's (2001) theorized U-shaped relation between intuition effectiveness and expertise.</p> <p>Less-experienced auditors rarely act skeptically.</p> <p>Assessing audit risk relates more closely to intuition than analytical thinking.</p>	<p>Inspection scores are results based on the experiences or subjective evaluations of auditors.</p> <p>Objective standards are not adopted to demonstrate actual construction quality.</p> <p>Auditors may be subjected to emotional pressure from the construction organizer hampering scoring samples.</p>	<p>Accountants tend to behave toward introversion, sensing, and judgment rather than extroversion, intuition, feeling, and perception.</p> <p>More individuals are expected to enter the profession with a tendency toward sensing rather than intuition.</p>
How they addressed the question /What they did	Empirically. Three experiments using a task that requires auditors to assess a group of impairment indicators.	Empirically. Integrated the analytic network process (ANP) and fuzzy set (FS) to develop a construction quality index (CQI) model.	Empirically. A survey taking a previously validated scale based on the Myers-Briggs type indicator and the Rational-Experiential Inventory.
Brazel and Schaefer (2015) object of interest	Traits Mindset / Prompts	Environmental and Contextual Factors Mindset / Prompts	Traits Mindset / Prompts
Main findings/ conclusion	<p>Less-experienced auditor results are consistent with the propositions.</p> <p>Experienced auditors' results show no difference between intuition and analytical thinking when task complexity is high.</p>	The method prevents cognitive differences between auditors from generating inconsistent rating standards and would solve the problem of intuitive on-site scoring by auditors.	<p>There are uneven split for sensing/intuition and judgment/perception and a near-even split for extraversion/ introversion, thinking/feeling, and cognition/intuition.</p> <p>These near-even splits may indicate a shift toward individuals more capable of thinking intuitively.</p>
Future research	<p>Does an expert auditor's analytical thinking crowd out intuition? How often and when?</p> <p>Can less-experienced auditors elevate the quality of their intuition by calling on holistic and affective intuition?</p>	-	<p>Longitudinal studies about firms' recruitment strategies regarding personality traits and cognitive styles.</p> <p>Differences in characteristics of experienced individuals.</p>

## 4. DISCUSSION

The findings of this study suggest that the academic production about auditors' intuition is scarce, which may result from the normative resistance to the intuition concept applied to auditors' professional judgment by international and local norms and standard-setting organizations.

It is inevitable to perceive that the normative rules governing the audit activity, whether in the public or private sector, give room to the paradox intuition-rational tension framework proposed by Calabretta et al. (2017). The professional skepticism expected from auditors' mindset is confronted with the technical necessity to make the cause-effect relationships explicit. It is the antagonism between the necessity of sufficient and proper documentation to support an auditor's opinion and the exercise of the so-called professional skepticism mindset.

Some professional organizations of accountants, auditors, and independent standard-setting boards are more resistant to the intuition concept than others. It seems to be the case with the IIA, AICPA, GASB, and COSO that showed no results when compared with IAASB, IAESB, IESBA, IFAC, FASB, FRC, AAA, PCAOB, or ISACA records. Notwithstanding this resistance, the auditors' skepticism subject has experienced a growing production in the last years, undoubtedly due to the contribution of the commissioned research by these professional and standard-setting organizations. In one of them, commissioned by IAASB (Brazel & Schaefer, 2015), it was possible to note the trend of studies based on experiments and the space to explore methodologies based on interviews or focus groups.

A single article in the academic production sample (Wolfe et al., 2020) is a sequence of research on auditors' professional skepticism first commissioned by a professional organization. However, three articles are from journals (Contemporary Accounting Research Journal and Journal of Information Systems) published by professional associations (The Canadian Academic Accounting Association and American Accounting Association). It denotes that the intersection between the academic and practitioner frontiers is vital for knowledge development about auditors' intuition.

Except for one literature review about conflict of interest in professional accounting firms, the other

studies were empirical, two being experiments integrating Mindset/Prompts and Traits object of interest. It seems to be a trend that academic studies integrate Brazel and Schaefer's (2015) categories. However, previous academic studies have not dealt with training auditors to combine intuitive with analytical thinking and circumvent personality traits.

The sample's studies did not cover two themes categories: Time and Competence, which may suggest a gap that the academy can explore, taking the questions raised in practitioners' studies as a good starting point. The same happens with some questions raised in other categories.

Time and Competence absences are surprising. Time because the findings from Lambert et al. (2016) of a negative impact on professional skepticism seem somewhat contradictory with the expected behavior of use of intuitive thought processes in circumstances of extreme time pressure (Dane & Pratt, 2007). In its turn, we supposed Competence would be closer to the intuition study due to the relation to specific activities such as risk assessment and fraud detection. Hence, it was frustrating not to find research that united the Time, Competence, and Environmental and Contextual Factors categories to study some of the cases involving audits in corporate or public administration bodies after financial or corruption scandals involving fraud with significant media attention over the last twenty-five years.

As for incentives, the only study that dealt with the subject (Johnson et al., 2019) confirms the argument towards the hindrance of auditors' skepticism and the use of intuition due to the concern with the inspection of oversight bodies (Glover & Prawitt, 2014; Hawkins et al., 2020). It is a finding that needs to be addressed by the professional and standard-setting organizations and the oversight bodies to balance the necessary formality with the due exercise of a soft skill that can be essential to detect risks of misconduct.

Let us imagine a situation in which an auditor has an intuition that requires a change in the initial planning of the work. The auditor may or may not follow intuition and include tests that impact the initial planning. If the auditor chooses to follow intuition and, as a result, manages to detect an error or fraud, he/she would be encouraged to reveal that made the decision based on intuition. Apart from

this hypothesis, there would be no stimulus for the intuition to be revealed in all the others. If the auditor follows intuition and fails to detect errors and omissions, he/she will hardly reveal the real reason for changing the plan due to any coverage failure it may have caused to the initial plan. In the event of not following the intuition and keeping to the plan, the non-detection of the error or fraud would be taken as a typical audit risk, with no incentive for the auditor to reveal the unfollowed intuition that could have detected the problem, mainly due to the formalistic approach of the quality control by the oversight boards.

Brazel *et al.* (2016) concluded that the evaluation of professional skepticism might depend more

on the result than the evaluation process. We argue that it is also true for auditors' eventual use of intuition. The outcome is determinant to validate the use of such skill. The analytical process burdens or eliminates the intuitive process, as shown in research in administration and psychology. In an audit, when auditors choose not to use intuition, they lose contact with the structures of holistic value and get to trust only the more commonly available auditing evidence revealed in their analysis (Wolfe *et al.*, 2014).

To conclude this section, we suggest critical points for future research in Table 4 for each of Brazel and Schaefer's (2015) categories of themes, expanding the study of auditors' skepticism to embrace auditors' intuition.

**TABLE 4. RESEARCH AGENDA ON AUDITORS' INTUITION**

BRAZEL AND SCHAEFER'S (2015) THEMATIC CATEGORIES	QUESTIONS PROPOSED FOR FUTURE RESEARCH
Incentives	<p>The quality control of the audit process, like inspections from oversight boards, would induce a more skeptical behavior of auditors or not? (Glover &amp; Prawitt, 2014) x (Westermann <i>et al.</i>, 2014)</p> <p>Why do professional associations, standard-setting organizations, and oversight bodies not recognize intuition as an expression of an auditor's skepticism?</p> <p>How do we overcome documentation requirements to validate intuition as a cognitive process?</p> <p>How can auditors be stimulated to reveal intuition burdened or used in unsuccessful error and fraud detection cases?</p>
Time	<p>Is intuition mainly used at the end of a tiring working day? (Raval &amp; Sharma, 2020)</p> <p>In extreme time and workload pressure circumstances, are auditors more likely to use intuitive thought processes or not?</p>
Mindset / Prompts	<p>How can auditors be trained to combine analytical/convergent reasoning processes with intuitive/divergent thinking? (Plumlee <i>et al.</i>, 2012)</p>
Environmental and Contextual Factors	<p>Do Customers'/Auditees' threats negatively impact auditors' skepticism? (Bennett &amp; Hatfield, 2015)</p> <p>How do auditors working beyond the territorial limits of their national law and standards, as in the case of cross-border funding, activate their intuition, imagination, wisdom, gut instinct, and alertness? (Hsing, 2006)</p> <p>How does conflict of interests at a firm's level impact an individual professional skepticism? (Ishaque, 2021)</p>
Competence	<p>Why do more experienced auditors develop helpful intuition related to misstatements caused by error but not fraud? (Hawkins <i>et al.</i>, 2020)</p>
Traits	<p>When negative evidence contradicts evidence mostly common in auditing, are auditors who use intuitive processes more skeptical than auditors who use analytical processes? (Wolfe <i>et al.</i>, 2014)</p> <p>Does an expert auditor's analytical thinking crowd out intuition? How often and when? (Wolfe <i>et al.</i>, 2020)</p> <p>Can less-experienced auditors elevate the quality of their intuition by calling on holistic and affective intuition? (Wolfe <i>et al.</i>, 2020)</p>

BRAZEL AND SCHAEFER'S (2015) THEMATIC CATEGORIES	QUESTIONS PROPOSED FOR FUTURE RESEARCH
Time+Environmental and contextual factors+Competence	Do audits in companies or public administration bodies after financial or corruption scandals involving fraud count on the intuitive thinking of the auditor? Who is this auditor, and how does he/she uses intuition or hinder it?

The following section describes the synthesis and implications of this research.

## 5. CONCLUSION

The use of intuition by auditors to detect errors and fraud is likely to be a significant development of professional skepticism, and normative acceptance is vital. This paper provides a foundation to advance audit research by synthesizing existing literature, identifying research gaps, and proposing an agenda for future research.

Based on a comprehensive review and analysis of normative basis, practitioners commissioned research and academic papers; we make two significant contributions to knowledge. First, the findings suggest that practitioners' commissioned research on auditors' skepticism is an essential source to bridge the academic production on auditors' intuition and the rule-making by professional and standard-setting organizations. Second, we propose a research agenda for the main categories of themes: Incentives, Time, Mindset / Prompts, Environmental and Contextual Factors, Competence, and Traits (Brazel & Schaefer, 2015).

Moreover, these studies could use alternative research methods such as interviews, focus groups, or case studies of corruption and financial scandals of significant repercussions in recent years, allowing for an in-depth qualitative analysis.

These future academic studies to enhance knowledge of auditors' intuition in key points would deepen and complement the practitioners' production, hopefully contributing to practical normative guidance on how the auditor can use and document intuition to exercise professional skepticism. Without this, government authorities and professional oversight boards will probably continue to conclude that most of the problems in the performance of auditors and auditing firms stem from insufficient use of professional skepticism.



## REFERENCES

- Auditing Practices Board. (2012). Professional Scepticism: Establishing a common understanding and reaffirming its central role in delivering audit quality. In *Financial Reporting Council FRC*. <https://www.frc.org.uk/getattachment/3353c201-13d6-4dfb-854c-57106c272d49/Briefing-Paper-professional-scepticism-March-2012.pdf>
- Bennett, G. B., & Hatfield, R. C. (2015). The Effect of the Social Mismatch Between Staff Auditors and Client Management on the Collection of Audit Evidence. *The Accounting Review*, 88(1). <https://ssrn.com/abstract=2137183>
- Brazel, J. F., Jackson, S. B., Schaefer, T. J., & Stewart, B. W. (2016). The outcome effect and professional skepticism. *Accounting Review*, 91(6), 1577–1599. <https://doi.org/10.2308/accr-51448>
- Brazel, J. F., & Schaefer, T. J. (2015). Executive Summary: State of the Art Research Related to Auditor Professional Skepticism (2013 – 2015). In *IAASB Meeting Summary (December 7-11, 2015)* (Issue December). [http://www.iaasb.org/system/files/meetings/files/20151207-IAASB-Agenda\\_Item\\_7A-Slide-Presentation-State\\_of\\_the\\_Art\\_Research\\_Relating\\_to\\_Auditor\\_Professional\\_Skepticism-final.pdf](http://www.iaasb.org/system/files/meetings/files/20151207-IAASB-Agenda_Item_7A-Slide-Presentation-State_of_the_Art_Research_Relating_to_Auditor_Professional_Skepticism-final.pdf)
- Brown-Liburud, H. L., Cohen, J., & Trompeter, G. (2013). Effects of Earnings Forecasts and Heightened Professional Skepticism on the Outcomes of Client-Auditor Negotiation. *Journal of Business Ethics*, 116(2), 311–325. <https://doi.org/10.1007/s10551-012-1473-5>
- Calabretta, G., Gemser, G., & Wijnberg, N. M. (2017). The Interplay between Intuition and Rationality in Strategic Decision Making: A Paradox Perspective. *Organization Studies*, 38(3–4), 365–401. <https://doi.org/10.1177/0170840616655483>
- Carpenter, T. D., & Reimers, J. L. (2013). Professional skepticism: The effects of a partner's influence and the level of fraud indicators on auditors' fraud judgments and actions. *Behavioral Research in Accounting*, 25(2), 45–69. <https://doi.org/10.2308/bria-50468>
- Cohen, J., Ding, Y., Lesage, C., & Stolowy, H. (2017). Media Bias and the Persistence of the Expectation Gap: An Analysis of Press Articles on Corporate Fraud. *Journal of Business Ethics*, 144(3), 637–659. <https://doi.org/10.1007/s10551-015-2851-6>
- Conselho Federal de Contabilidade. (2009). *Resolução CFC no 1.203/09* (1203/09; pp. 1–33). CFC. [http://www1.cfc.org.br/sisweb/SRE/docs/Res\\_1203.pdf](http://www1.cfc.org.br/sisweb/SRE/docs/Res_1203.pdf)
- Conselho Federal de Contabilidade. (2016). NBC TA 200 (R1) – Objetivos Gerais do Auditor Independente e a Condução da Auditoria em Conformidade com Normas de Auditoria. In *Conselho Federal de Contabilidade* (2016/NBC/TA200(R1); pp. 1–27). CFC. [http://www1.cfc.org.br/sisweb/SRE/docs/NBCTA200\(R1\).pdf](http://www1.cfc.org.br/sisweb/SRE/docs/NBCTA200(R1).pdf)
- Dane, E., & Pratt, M. G. (2007). Exploring Intuition and Its Role in Managerial Decision Making. *Academy of Management Review*, 32(1), 33–54. <https://doi.org/10.5465/AMR.2007.23463682>
- Dubsky, L. (2016). Assessing Security Controls: Keystone of the Risk Management Framework. *ISACA Journal*, 6, 1–4. <https://www.isaca.org/Journal/archives/2016/volume-6/Pages/assessing-security-controls.aspx>
- Fuller, L. R., & Kaplan, S. E. (2004). A Note about the Effect of Auditor Cognitive Style on Task Performance. *Behavioral Research in Accounting*, 16, 131–143. <http://link.galegroup.com/apps/doc/A115758858/AONE?u=capes&sid=AONE&xid=2e4aaa0b>
- Gammie, E. (2018). *Professional Skepticism Literature Review Part 1- Unconscious Bias and Professional Skepticism* (Issue April). <https://www.iaesb.org/system/files/meetings/files/5-2-Thought-Leadership-Role-of-Bias-in-PS-FINAL.pdf>
- Gelbstein, E. (2016). Auditing IS / IT Risk Management , Part 1 Risk Management. *ISACA Journal*, 2.
- Glover, S. M., & Prawitt, D. F. (2014). Enhancing auditor professional skepticism: The professional skepticism continuum. *Current Issues in Auditing*, 8(2), P1–P10. <https://doi.org/10.2308/ciia-50895>
- Ha, B. (2005). System-based Auditing and Monitoring of Government Programs and Projects. *International Journal of Government Auditing*, 32(4), 11–14. <http://www.intosai.org/uploads/3200510e2.pdf>
- Hamm, K. M. (2018). *Mexican Mangos, Diamonds, Cargo Shipping Containers, Oh My! What Auditors Need to Know about Blockchain and Other Emerging Technologies: A Regulator's Perspective*. [https://pcaobus.org/news-events/speeches/speech-detail/mexican-mangos-diamonds-cargo-shipping-containers-oh-my!-what-auditors-need-to-know-about-blockchain-and-other-emerging-technologies-a-regulator-s-perspective\\_684](https://pcaobus.org/news-events/speeches/speech-detail/mexican-mangos-diamonds-cargo-shipping-containers-oh-my!-what-auditors-need-to-know-about-blockchain-and-other-emerging-technologies-a-regulator-s-perspective_684)
- Hawkins, E. M., Vandervelde, S. D., & Zimbelman, A. F. (2020). When Documentation Inhibits Helpful Auditor Intuition: An Examination of Experience and Accountability. *2020 American Accounting Association Auditing Section Midyear Meeting*.
- Hogarth, R. M. (2001). *Educating Intuition*. The University of Chicago Press. <https://doi.org/10.1177/0963721415588081>
- Hsing, H. H. (2006). Disaster-Related Aid: International Symposium on Auditing Tsunami Relief Funds. *International Journal of Government Auditing*, 33(4), 14–17. <http://www.intosai.org/uploads/oktober06eng.pdf>
- Hurt, R. K., Brown-Liburud, H., Earley, C. E., & Krishnamoorthy, G. (2013). Research on auditor professional skepticism: Literature synthesis and opportunities for future research. *Auditing: A Journal of Practice & Theory*, 32(SUPPL.1), 45–97. <https://doi.org/10.2308/ajpt-50361>

- International Accounting Standards Board. (2009). *Impairment: guidance for variable interest rates* (IASB Staff Paper). IASB.
- International Auditing and Assurance Standards Board. (2021). *Handbook of International Quality Control, Auditing, Review, Other Assurance, and Related Services Pronouncements: Vol. I* (2021st ed.). International Auditing and Assurance Standards Board.
- Ishaque, M. (2021). Managing Conflict of Interests in Professional Accounting Firms: A Research Synthesis. *Journal of Business Ethics*, 169(3), 537–555. <https://doi.org/10.1007/s10551-019-04284-8>
- Johnson, L. M., Keune, M. B., & Winchel, J. (2019). U.S. Auditors' Perceptions of the PCAOB Inspection Process: A Behavioral Examination. *Contemporary Accounting Research*, 36(3), 1540–1574. <https://doi.org/10.1111/1911-3846.12467>
- Khaneman, D. (2011). *Thinking, Fast and Slow* (Farrar, Straus, & Giroux (eds.)).
- KPMG LLP, Glover, S. M., & Prawitt, D. F. (2012). *Enhancing Board Oversight: Avoiding Judgment Traps and Biases*. [www.coso.org](http://www.coso.org)
- Lambert, T. A., Jones, K. L., Brazel, J. F., & Showalter, D. S. (2016). Audit Time Pressure and Earnings Quality: An Examination of Accelerated Filings. *SSRN Electronic Journal*. <https://ssrn.com/abstract=963402>
- Mallur, S. (2020). Predicting cybersecurity risk severity using Bayesian-based machine learning. *ISACA Journal*, 6, 34–41.
- Nelson, M. W. (2009). A model and literature review of professional skepticism in auditing. *Auditing: A Journal of Practice & Theory*, 28(2), 1–34. <https://doi.org/10.2308/aud.2009.28.2.1>
- Owens, A., Rede, S., & Evans, B. (2018). Auditing Culture: Touch, Feely, Effective. *The Journal of Local Government Auditing, Summer*.
- Paré, G., Trudel, M. C., Jaana, M., & Kitsiou, S. (2015). Synthesizing information systems knowledge: A typology of literature reviews. *Information and Management*, 52(2), 183–199. <https://doi.org/10.1016/j.im.2014.08.008>
- Persellin, J., Schmidt, J. J., Vandervelde, S., & Wilkins, M. S. (2019). Auditor Perceptions of Audit Workloads, Audit Quality, and Job Satisfaction. *Accounting Horizons*, 33(4), 95–117. <https://doi.org/10.2139/ssrn.2534492>
- Plumlee, D., Rixom, B. A., & Rosman, A. J. (2012). Training Auditors to Think Sceptically. *2012 Deloitte Foundation/ University of Kansas Auditing Symposium The Impact of the PCAOB on the Conduct of the Audit*, 29–41. <https://doi.org/10.2139/ssrn.1890779>
- Public Company Accounting Oversight Board. (2017). *Auditing Standards of the Public Company Accounting Oversight Board* (Issue 202). [https://pcaobus.org/Standards/Auditing/Documents/PCAOB\\_Auditing\\_Standards\\_as\\_of\\_December\\_15\\_2017.pdf](https://pcaobus.org/Standards/Auditing/Documents/PCAOB_Auditing_Standards_as_of_December_15_2017.pdf)
- Public Company Accounting Oversight Board. (2018). Auditing Accounting Estimates, Including Fair Value Accounting Estimates and Amendments to PCAOB Auditing Standards. In *PCAOB Release* (Issue 005). [https://pcaob-assets.azureedge.net/pcaob-dev/docs/default-source/rulemaking/docket043/2018-005-estimates-final-rule.pdf?sfvrsn=568f8167\\_0](https://pcaob-assets.azureedge.net/pcaob-dev/docs/default-source/rulemaking/docket043/2018-005-estimates-final-rule.pdf?sfvrsn=568f8167_0)
- Ramamoorti, S., Grambling, A. A., & Behn, B. (2017). *IAESB Task Force Report on Professional Skepticism*.
- Raval, V., & Sharma, R. (2020). The human elements of risk. *ISACA Journal*, 3, 15–19.
- Rose, A. M., Rose, J. M., Sanderson, K.-A., & Thibodeau, J. C. (2017). When Should Audit Firms Introduce Analyses of Big Data Into the Audit Process? *Journal of Information Systems*, 31(3), 81–99. <https://doi.org/10.2308/isys-51837>
- Tribunal de Contas da União. (2013). *Acórdão 7307*. <https://contas.tcu.gov.br/sagas/SvlVisualizarRelVotoAcRtf?codFiltro=SAGAS-SESSAO-ENCERRADA&seOcultarPagina=S&item0=484953>
- Tribunal de Contas da União. (2017). *Acórdão 2460*. <https://contas.tcu.gov.br/sagas/SvlVisualizarRelVotoAcRtf?codFiltro=SAGAS%0A-SESSAO-ENCERRADA&seOcultarPagina=S&item0=602677>
- Trott, E. W., & Upton, W. S. (2001). Expected Cash Flows. In *Understanding the issues* (1, Vol. 1, Issue May).
- United States Government Accountability Office. (2011). *Government Auditing Standards: 2011 Revision* (Issue December, pp. 1–220). <https://www.gao.gov/assets/590/587281.pdf>
- Westermann, K. D., Bedard, J. C., & Earley, C. E. (2015). Learning the “Craft” of Auditing: A Dynamic View of Auditors' On-the-Job Learning. *Contemporary Accounting Research*, 32(3), 864–896. <https://doi.org/10.1111/1911-3846.12107>
- Westermann, K. D., Cohen, J., & Trompeter, G. (2014). Professional Skepticism in Practice: An Examination of the Influence of Accountability on Professional Skepticism. *ISAR International Symposium on Audit Research, June*, 1–46. [https://isarhq.org/2014\\_downloads/papers/ISAR2014\\_Westermann\\_Cohen\\_Trompeter.pdf](https://isarhq.org/2014_downloads/papers/ISAR2014_Westermann_Cohen_Trompeter.pdf)
- Wolfe, C. J., Christensen, B. E., & Vandervelde, S. (2014). Thinking Fast Versus Thinking Slow the Effect on Auditor. *SSRN Electronic Journal*, 33. <https://doi.org/10.1007/s10551-015-2769-z>

Wolfe, C. J., Christensen, B. E., & Vandervelde, S. D. (2020). Intuition versus Analytical Thinking and Impairment Testing. *Contemporary Accounting Research*, 37(3), 1598–1621. <https://doi.org/10.1111/1911-3846.12568>

Zwirn, E. (2005). Joseph T. Wells: sound skepticism; The founder and chairman of the board of the Association of Certified Fraud Examiners has some specific views on how internal auditors can help defend their companies against fraud. *Internal Auditor*, 62(1), 73+. <https://link.gale.com/apps/doc/A129977787/AONE?u=anon~151e7317&sid=googleScholar&xid=37d5c9e5>



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