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ORIGINAL ARTICLE

Professional skepticism of internal auditors and perception of risks in internal controls

Emilly Stein[1]
https://orcid.org/0000-0002-4509-961X
Email: emilly.stein@gmail.com

Paulo Roberto da Cunha[2,3]
https://orcid.org/0000-0001-5805-9329
Email: paulocca@furb.br

[1] Universidade Regional de Blumenau, Programa de Pós-Graduação em Ciências Contábeis, Blumenau, SC, Brazil
[2] Universidade Regional de Blumenau, Departamento de Ciências Contábeis, Blumenau, SC, Brazil
[3] Universidade do Estado de Santa Catarina, Departamento de Ciências Contábeis, Ibirama, SC, Brazil

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ABSTRACT

This article analyzes the relationship between professional skepticism of internal auditors and perception of risks in internal controls. Internal auditors know the company's functioning and environment, so their premise lies on the prevention and identification of signs of errors, fraud, risks, and weaknesses in internal control systems. Even though the literature does not emphasize the theme in internal auditing, the internal auditor must exercise professional skepticism in audit work, especially in an environment that exhibits reduced independence. Given the relevance of professional skepticism in audit work, internal auditors must also take a skeptical attitude, helping to prevent and identify signs of fraud, risks, and weaknesses in internal control systems. Research relating the auditor's skeptical trait to the ability to perceive risks in internal controls makes a major contribution to organizations, as companies can suffer significant losses as a result of fraud or inefficiency of internal processes. This is a research with a deductive perspective, a positivist methodological approach and a survey data collection method. The professional skepticism of internal auditors was measured by using the Hurtt (2010) questionnaire. For the variable risk perception, 10 scenarios were created by having research by Deloitte (2015), Ge and McVay (2005), and KPMG (2000) as a basis. The professional skepticism level has a positive relationship with perception of risks in internal controls. These findings help organizations to strengthen these characteristics in internal auditors, since perception of risks in internal controls can prevent the risk from materializing and constituting a deficiency in internal controls or fraud. The theoretical contribution is highlighted with the presentation of scenarios as a measure of perception of risks in internal controls.

Keywords: professional skepticism, internal audit, risks in internal controls.

Correspondence address

Emilly Stein
Universidade Regional de Blumenau, Programa de Pós-Graduação em Ciências Contábeis
Rua Antônio da Veiga, 140, sala D-202 – CEP: 89030-903
Itoupava Seca – Blumenau – SC – Brazil

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Ceticismo profissional de auditores internos e a percepção de riscos nos controles internos

RESUMO

Este artigo analisa a relação entre o ceticismo profissional dos auditores internos e a percepção de riscos nos controles internos. Os auditores internos têm conhecimento do funcionamento e ambiente da empresa, de modo que têm como premissa a prevenção e identificação de sinais de erros, fraude, riscos e fraquezas no sistema de controle interno. Ainda que a literatura não enfatize o tema na auditoria interna, o auditor interno deve manter um ceticismo profissional nos trabalhos da auditoria, sobretudo em um ambiente que apresenta uma independência reduzida. Dada a relevância do ceticismo profissional nos trabalhos de auditoria, os auditores internos também devem adotar uma atitude cética, auxiliando na prevenção e identificação de sinais de fraude, riscos e fraquezas no sistema de controle interno. Pesquisas relacionando o traço cético do auditor com a capacidade de percepção de riscos nos controles internos trazem uma contribuição importante para as organizações, já que as empresas podem sofrer perdas significativas em decorrência de fraudes ou ineficiência dos processos internos. Esta é uma pesquisa de perspectiva dedutiva, abordagem metodológica positiva e com método de coleta de dados survey. O ceticismo profissional dos auditores internos foi mensurado por meio do questionário de Hurtt (2010). Para a variável de percepção de riscos foram elaborados 10 cenários com base em pesquisas de Deloitte (2015), Ge e McVay (2005) e KPMG (2000). O nível de ceticismo profissional tem uma relação positiva com a percepção de riscos nos controles internos. Esses achados contribuem para as organizações fortalecerem essas características nos auditores internos, visto que a percepção dos riscos nos controles internos pode evitar que o risco se materialize e caracterize uma deficiência de controle interno ou fraude. Ressalta-se a contribuição teórica com a apresentação dos cenários como medida de percepção de riscos em controles internos.

Palavras-chave: *ceticismo profissional, auditoria interna, riscos nos controles internos.*

1. INTRODUCTION

Professional skepticism is a major concept in auditing practice and its relevance is evidenced in auditing standards (Hurtt, 2010). Although this term has no precise definition, regulatory bodies such as the Public Company Accounting Oversight Board (PCAOB) and the American Institute of Certified Public Accountants (AICPA) define professional skepticism as an attitude that includes a questioning mind and critical assessment of audit evidence. For the auditor to carry out a good quality audit, the Norma Brasileira de Contabilidade Técnica de Auditoria Independente 200 (Resolução CFC NBC TA 200 [R1], 2016) reinforces the need for the auditor to exhibit a high level of skepticism throughout the execution of this service.

Audit failures increased the emphasis on professional skepticism during the audit, requiring auditors to increase their level of skepticism throughout the service provision and reconcile this characteristic with accounting principles and standards (Fullerton & Durtschi, 2004). According to Hurtt (2010), professional skepticism can be both an individual trait, relatively stable and long-lasting, and a state, i.e. a temporary condition caused by situational variables. In this research, we seek to identify the level of the skeptical trait among internal auditors.

Although they are not under the same conditions as external auditors, internal auditors must also take an attitude of high skepticism (Fullerton & Durtschi, 2004), helping to prevent and identify signs of fraud, risks, and weaknesses in internal control systems. The primary responsibilities of internal auditors are to examine, assess, and monitor the adequacy and effectiveness of internal controls over operations (AICPA, 2012).

Risks in internal controls are likely to materialize in deficiencies in internal controls. Deficiencies in internal controls are the main open door for fraud and were the responsible factor in 61% of loss cases analyzed in the research carried out by KPMG (2016). In this context, internal auditors, resorting to their knowledge of how the company operates, the corporate environment, and employee activities, are in a strategic position to detect possible fraud (Fullerton & Durtschi, 2004).

Considering that the greater the skeptical trait, the lower the chances of fraud going unnoticed during the audit process (Hurtt, 2010; Hurtt et al., 2013; International Auditing and Assurance Standards Board [IAASB], 2012), studying these characteristics make it possible to diagnose whether the level of professional skepticism can influence

internal auditors in perception of risks in internal controls (Fullerton & Durtschi, 2004).

Hurtt (2010) designed a widely empirically tested instrument to measure professional skepticism, which is seen as a multidimensional individual characteristic, discussed through 6 inherent characteristics: (i) questioning mind; (ii) suspension of judgment; (iii) search for knowledge; (iv) interpersonal understanding; (v) self-esteem; and (vi) autonomy. Given that professional skepticism is a multidimensional individual characteristic, necessary for audit quality, and considering that a high level of professional skepticism is a possibility to diagnose greater perception of risks in internal controls, this problem-based question guides the study:

- What is the relationship between internal auditors' professional skepticism and perception of risks in internal controls?

Thus, the purpose of this study is to analyze the relationship between internal auditors' professional skepticism and perception of risks in internal controls.

This study contributes to the discussion that professional skepticism increases the perception of internal auditors to diagnose risks in internal controls, contributing to reduce information asymmetry. Also, it is clear that research on skepticism has grown in recent years, however, often related to the characteristics of independent auditors, while in internal auditing research is still shy.

Professional skepticism is important for both internal and independent auditors (Enofe et al., 2015). Furthermore, the effectiveness and importance of internal auditing in organizations must be examined in detail in several ways, as most research has focused only on perceptions of independent auditors in this area (Coram et al., 2008), still remains a research gap.

Research relating the auditor's skeptical trait with the ability to perceive risks in internal controls makes a major contribution to organizations, as companies can suffer significant losses as a result of fraud, as reported in research studies by Ge and McVay (2007), Deloitte (2015), and KPMG (2000). So, having audit practitioners with a questioning mind in organizations can help to minimize deficiencies in internal controls.

Increasingly, organizations have invested in these programs with the involvement of the internal audit area in these initiatives (Deloitte, 2015). Research on ways to improve auditors' skills in preventing irregularities, in addition to knowledge of auditors' behavioral traits, is important for improving selection and training, aiming to improve audit quality and detect errors and fraud (Deloitte, 2015).

The detection of fraud in financial reporting remains a major concern for the auditing profession (Hammersley, 2011), in addition, deficiencies in internal controls and material weaknesses are emerging post-Sarbanes-Oxley (SOX) Act audit research themes, identified by Porte et al. (2018).

However, audit failures in identifying fraud do not only harm auditors. Such failures compromise the entire financial system; therefore, they have a direct impact on society. From a social perspective, fraud issues can reach major proportions, and it is important for organizations to protect themselves so as not to suffer from the expropriation of resources, maintaining business sustainability.

In this regard, grasping the relationship between professional skepticism and perception of risk in controls, from the perspective of internal auditors, is based on the potential cost generated by the absence of skepticism in the profession, which is not only measured by financial losses, but also by the reputation and trust lost in relation to investors in the capital markets (Carpenter et al., 2002).

2. PROFESSIONAL SKEPTICISM AND INTERNAL CONTROLS

Professional skepticism is a major concept in auditing practice and is frequently discussed in professional standards (Hurtt, 2010). Audit failures have increased the emphasis on the importance of skepticism during the audit, requiring auditors to increase their level of skepticism throughout the service and reconcile this characteristic with accounting principles and standards (Fullerton & Durtschi, 2004). Therefore, assuming that effective internal controls are one of the means to assist in the process of preventing, discovering, and combating fraud, professional skepticism can also contribute to the identification of risks that, without adequate internal controls, can lead to significant deficiency, error, or fraud (Fullerton & Durtschi, 2004).

Hurtt (2010) designed a professional skepticism instrument based on areas such as marketing, psychology, and management, but also based on the standards established for audit practitioners. As a result, the author

introduces 6 characteristics that constitute professional skepticism: (i) questioning mind; (ii) suspension of judgment; (iii) search for knowledge; (iv) interpersonal understanding; (v) autonomy; and (vi) self-esteem (Table 1).

Table 1
Characteristics of Hurtt's (2010) professional skepticism

Characteristic	Description
Questioning mind	Extent to which the auditor questions, examines, and considers the information and evidence obtained to establish beliefs before making a decision.
Suspension of judgment	Ability to withhold judgment until there is an appropriate level of evidence that is persuasive enough to support a conclusion, indicating a willingness to critically assess the evidence.
Search for knowledge	Auditor's general interest in seeking knowledge, indicating a sense of curiosity and will to investigate, explore, and discover.
Interpersonal understanding	Grasping the motivation and integrity of individuals so that the auditor can perceive the potential for bias that exists in the information provided by people.
Self-esteem	Level of appreciation that the auditor exhibits in their perceptions and trust in their own abilities.
Autonomy	The degree to which the auditor decides for themselves the level of evidence sufficient to make a judgment on a given hypothesis.

Source: *Prepared by the authors.*

The first 3 characteristics in Table 1 refer to the way an auditor examines evidence, indicating an attitude of questioning mind, in which the auditor continually questions the information and evidence obtained before making a decision (AICPA, 2012; Hurtt, 2010). Regarding the second characteristic, Hurtt (2010) points out that suspension of judgment is the basic trait of a skeptic person. This ability to withhold judgment until there is an appropriate level of evidence to support a conclusion motivates the next characteristic, the search for knowledge.

The fourth characteristic identifies the need to also consider the human aspects of an audit when assessing evidence. Interpersonal understanding, therefore, represents the level of understanding of individual motivations and perceptions to recognize possible bias in information or inaccurate, biased, or misleading information intentionally provided by people (Hurtt, 2010).

The fifth and sixth characteristics, self-esteem and autonomy, are personal to individuals, needed in the auditing profession and strengthen the building of the skeptical profile. Self-esteem is characterized as feelings of self-worth and belief in one's own abilities (Hurtt, 2010). When an auditor decides for himself the level of evidence needed to accept a given hypothesis, this is autonomy. Therefore, this characteristic deals with individual ability to act on the information obtained, resisting attempts at persuasion and challenging another person's assumptions (Hurtt, 2010).

This concept of professional skepticism, widely disseminated in auditing through accounting literature and standards, is also important in the context of internal auditing, since, according to Donelson et al. (2017), deficient internal controls are related to a greater risk of accounting fraud.

It is worth noticing that Hurtt's scale (2010) captures skepticism through the skeptical trait, a multidimensional individual characteristic consisting of 6 characteristics, considered relatively stable and long-lasting in the person. However, Hurtt (2010) mentions that skepticism also has a temporary condition, called a skeptical state, awakened by situational variables, such as time pressure, for example, which can awaken the person's skeptical state and influence their behavior.

In this sense, it is important that internal auditors strengthen their attention on the six multidimensional characteristics of skepticism, in addition to being aware of situational conditions that may interfere with their skeptical behavior during service provision, in order to contribute to the identification of risks that, without adequate internal controls, may lead to significant deficiency, error, or fraud (Fullerton & Durtschi, 2004).

Internal controls are needed as a response to risks to which organizations are exposed. Thus, internal controls and risk management follow a joint path that helps organizations achieve their goals (Castro et al., 2019; Farias et al., 2009). In the scope of internal controls, the work of the Committee of Sponsoring Organizations

of the Treadway Commission (COSO) also stands out, which aims, through its publications, to be recognized worldwide as a model structure for the development, implementation, and management of internal control systems, as well as for the assessment of its effectiveness.

Based on the concept that internal control is a process, the Committee of Sponsoring Organizations of the Treadway Commission (COSO, 2004) points out that the internal control structure is driven towards achieving the organization's goals in terms of strategy, operations, reliability in reporting and compliance, complying with applicable laws and regulations. Given its relevance, the concern with adequate structuring of the internal control system is constant. Companies tend to increase the level of control when variables related to organization size stand out (Mendes et al., 2017). According to Feng et al. (2009), companies with inefficient internal controls have less accuracy in management projections.

Thus, it is recommended that company management be committed to the application and improvement of internal control systems through active participation in the monitoring and supervision of organizational activities. According to Doyle et al. (2007), the adequate structuring of an internal control system tends to reduce: 1) the occurrence of fraud and errors; 2) audit risk and costs; 3) agency costs; 4) the republication of financial statements, etc.

According to Diniz and Sales (2018), among the activities of internal auditing, the following stand out: analyses, verifications, assessments, tests, and certification of accounting information and facts. Auditors must be able to identify risks and possible occurrence of fraud (Gramling et al., 2012). Since the perpetrators of fraud are, in most cases, trustworthy employees, only a skeptical internal auditor is likely to look beyond the appearance of trustworthiness and notice a change or contradiction in an employee's circumstances, behavior, or lifestyle (Fullerton & Durtschi, 2004). In this way, internal auditing adds value by improving the control and monitoring environment in organizations to detect and self-report fraud (Coram et al., 2008).

Notable cases of accounting fraud have sparked public and regulatory interest due to the failure of experienced auditors to detect fraud prior to the issuance of a company's financial statements (Carpenter et al., 2002). An instrument used by auditors to assist in detecting potential fraud consist in the red flags - symptoms, signs that may indicate the occurrence of fraud (Albrecht, 2003). Therefore, red flags represent warning signs used by an auditor to assess audit risk, particularly regarding the likelihood of material error or fraud in the entity's financial statements (Gullkvist & Jokipii, 2013).

Since risks in internal controls can materialize in deficiencies in internal controls, internal auditors, as corporate governance mechanisms, are in a position to contribute to the identification of these risks and possible deficiencies in internal controls.

Studies have also shown that high professional skepticism leads auditors to perform more audit tests, expand their information searches, assess a greater probability of fraud, and give more weight to evidence of fraud (Fullerton & Durtschi, 2004). However, little has been found about these relationships of professional skepticism in the internal audit environment. Given these characteristics, it is expected that the high level of the individual's skepticism characteristic will have a positive relationship with perception of risks that may require internal controls. In this context, the study hypothesis is formulated:

H_1: High levels of professional skepticism among internal auditors increase perception of risks in internal controls.

3. RESEARCH METHOD AND PROCEDURES

To achieve the research goal, a deductive perspective has been adopted, with a positivist theoretical approach and survey methodology. The subjects of this study are internal auditors and the research population consists of LinkedIn® users who self-declare as internal auditors on the platform, representing around 65,000 users, according to a survey carried out on the LinkedIn® search engine in September 2021.

The sample consisted of accessibility, resulting from the acceptance received from internal auditors after sending invitations via LinkedIn®. Along with the sending of the invitation, the link to the questionnaire was made available. Users included in the sample received a second and third reminder to participate in the survey, in order to increase the response rate.

Table 2 shows the set of variables used, highlighting their relationship with the research goal.

Table 2
Research construct

Variables	Operationalization	Author(s)
Professional skepticism (PS)	Instrument with 30 questions with a 6-point scale per question.	Hurtt (2010)
Perception of Risks in internal controls (PRIC)	10 scenarios involving perception of risks in internal controls.	Prepared by the authors

Source: *Prepared by the authors.*

To study the skeptical level, the instrument proposed by Hurtt (2010) was used, which corresponds to a questionnaire consisting of 30 questions, with 5 questions for each of the 6 characteristics of professional skepticism: (i) questioning mind; (ii) suspension of judgment; (iii) search for knowledge; (iv) interpersonal understanding; (v) autonomy; and (vi) self-esteem.

The scale consists of 6 points per question, allowing a sum between 30 and 180. The higher the sum achieved, the higher the skeptical level identified. There are 8 questions with reverse direction, namely: 1, 10, 11, 16, 17, 19, 25, and 26. In these questions, the value given by each internal auditor should be reduced by 7 points and the resulting value is considered for the sum.

For the variable risk perception, it was necessary to create the respective scenarios, as no construct or equivalent was found in the literature that could align with the research goal.

Initially, we sought to identify the main types of problems encountered with regard to errors or fraud. This step was important to substantiate the background of the scenarios. Thus, we used Deloitte (2015), Ge and McVay (2005), and KMPG (2000). KPMG (2000) refers to a survey conducted by the Brazilian division of KPMG Forensic Services, through a questionnaire on fraud for the CEOs of more than 1,000 of the largest national companies, from the most diverse industrial sectors. With a 15% return, the survey reveals that there are red flags that can lead to fraud issues (Figure 1).

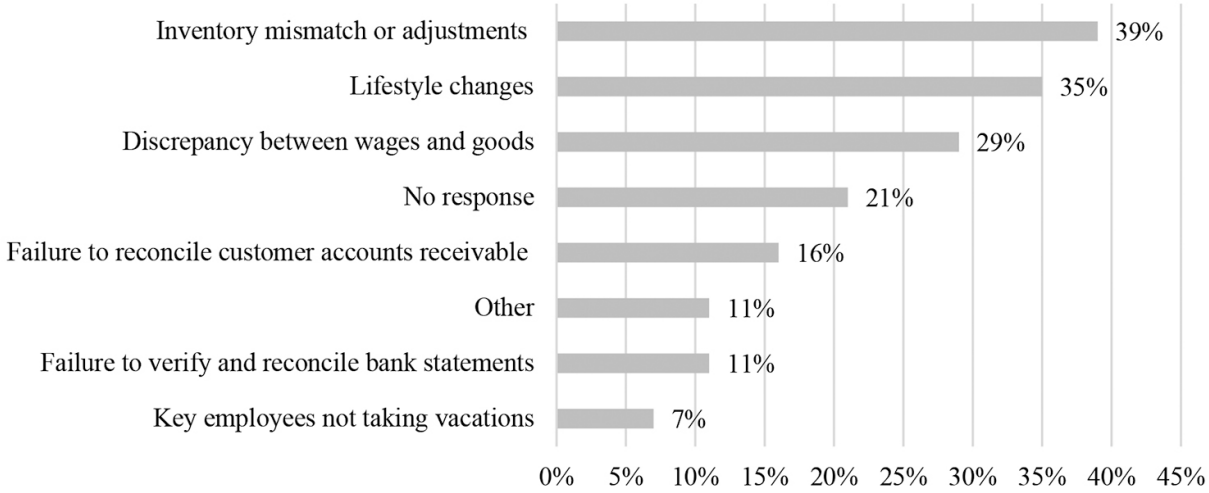

Figure 1 *Red flags*
Source: *KPMG (2000).*

The study by Ge and McVay (2005) used a classification drawn from a sample of 261 U.S. companies, in a period prior to the enactment and deployment of the SOX Act. In this study, deficiencies in internal controls were categorized into weaknesses considered material (Figure 2).

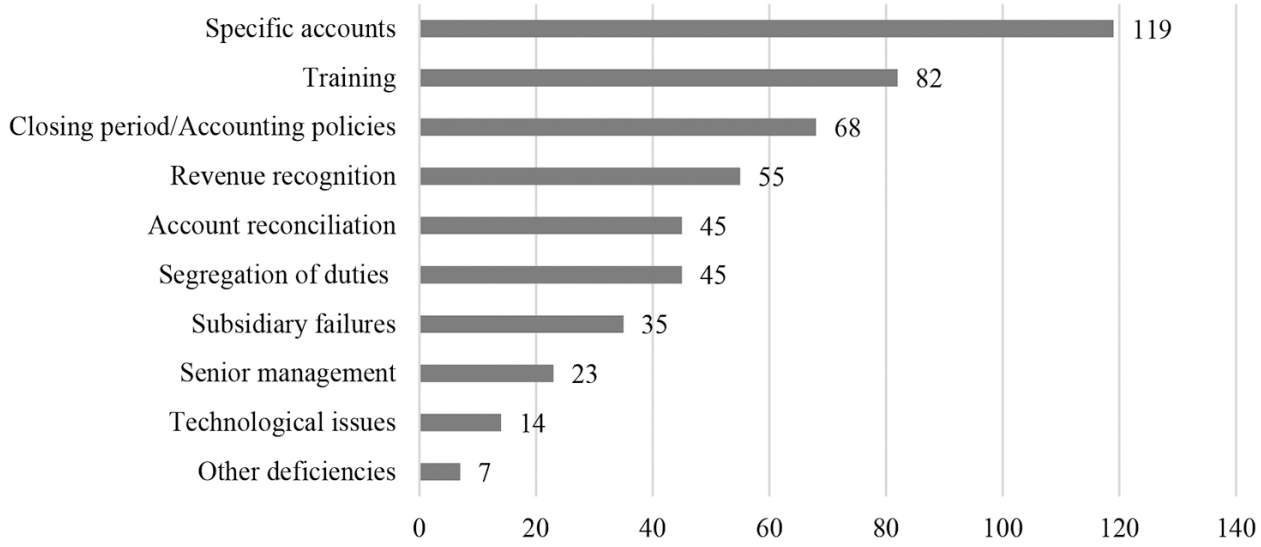

Figure 2 *Number of material weaknesses in internal controls by type of deficiency*
Source: *Ge and McVay (2005).*

Finally, information from the survey conducted by Deloitte (2015) was also used, which addresses the role that internal auditing plays in Brazilian organizations and its level of maturity. The survey was conducted between November 2014 and January 2015, using an electronic questionnaire with 175 respondents. Figure 3 shows the main fraud risks addressed by internal audit services.

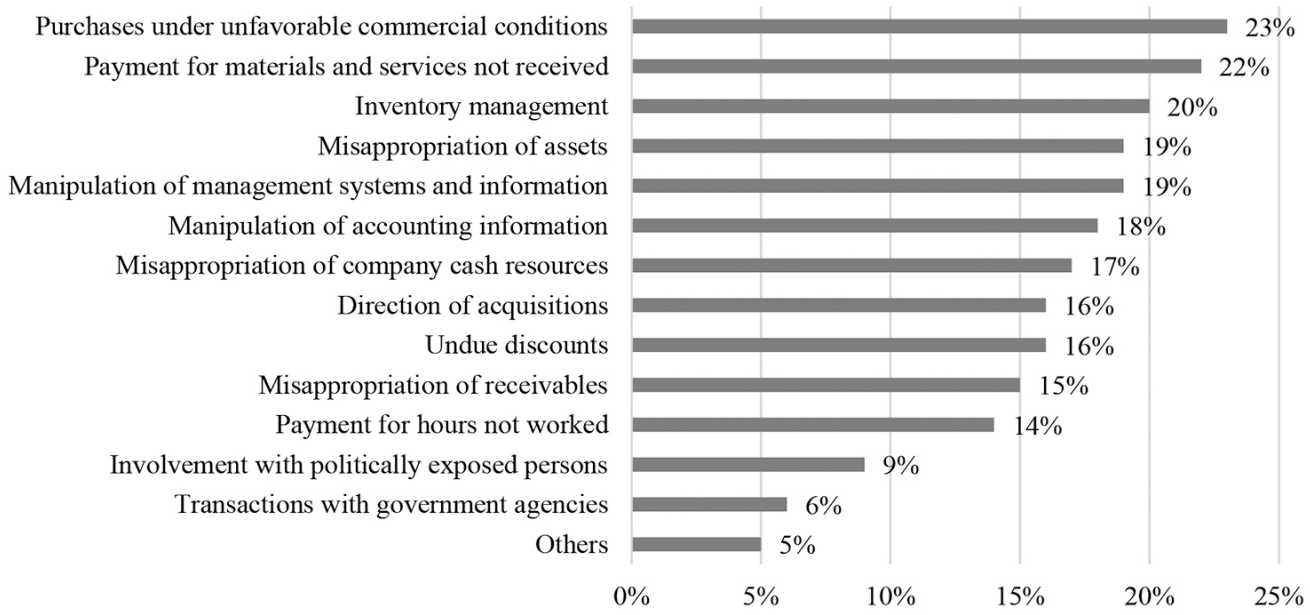

Figure 3 *Main fraud risks addressed by internal audit services*
Source: *Deloitte (2015).*

It is observed that signs or elements regarding fraud are recurrent. The risks were selected by considering: (i) themes from Deloitte (2015), Ge and McVay (2005), and KMPG (2000); (ii) themes that showed convergence between the research studies; and (iii) a scenario that was not long and allowed to contemplate the desired risk.

Thus, some types of deficiencies in internal controls were chosen to support the scenarios regarding perception

of signs of risks in internal controls, namely: segregation of functions, bank reconciliation, diversion of receivables, revenue recognition, training, payment of overtime not worked, purchases under unfavorable conditions, receivables, change in lifestyle, and outsourcing.

Out of the 10 scenarios, 3 were prepared without risks in internal controls: scenarios 3, 8, and 10, which specifically addressed risks of misappropriation of receivables, receivables, and outsourcing. This procedure was carried out as a way to determine whether the respondent created bias in their responses. All scenarios, after an initial draft, were previously sent to independent auditors, being 1 independent auditor from a Big Four and 2 independent auditors from a non-Big Four, one of whom was a specialist in risk management. A remote meeting was scheduled with each auditor to discuss the scenarios and hear possibilities for improvements, as a pre-test to obtain an empirical perspective from auditing experts, as part of the audit process of financial statements to identify and assess risks and their respective controls. Each auditor showed their considerations scenario by scenario, discussing and assessing the need for adaptation and adjustment. After listing all the points per scenario, it was decided and assessed whether adjustments were needed. For each scenario shown in the collection instrument, the internal auditor responded, based on their perception, how much risk the scenario shows on a 5-point Likert scale, with 1 being low perception of risks in internal controls and 5, high perception of risks in internal controls, as observed in the questionnaire available at the link https://pt.surveymonkey.com/r/SMMLKRG.

Data collection took place through an online questionnaire administered on the Survey Monkey® platform. The questionnaire consists of 3 blocks (Professional skepticism; Risk perception; and Respondent characterization). Data collection began on October 6, 2021, and ended on November 17, 2021. A total of 528 responses were obtained, and the responses of 124 participants were removed from the sample due to incomplete filling of the questionnaire. A check was then carried out to identify biases in the responses. In this analysis, 22 additional responses were excluded from the sample that attributed the same response option to all questions, in this case all (1) Strongly disagree or all (6) Strongly agree in the block of professional skepticism questions or (1) Low risk perception or all (5) High risk perception, in the block of questions involving perception of risks in internal controls, resulting in 382 valid and fully answered questionnaires.

Data analysis is performed by using descriptive statistics and simple, multiple, and quantile linear regression.

4. ANALYSIS AND DISCUSSION OF RESULTS

After data collection, data were tabulated and the study variables were calculated. To calculate the variable perception of risks in internal controls, the score that each respondent attributed to each scenario was initially tabulated. Then, the average of each scenario was calculated, i.e. the average score attributed by respondents to each of the scenarios according to their risk perception.

According to the average obtained, the scenarios were classified as low, intermediate, and high risk in internal controls. After grouping these scenarios, the coefficient of variation for each scenario was calculated and a weight was attributed to each scenario. Then, the weighted average of each grouping (low, intermediate, and high risk) was calculated for each respondent. The weighted average of the grouping of scenarios into low, intermediate, and high risk was added to constitute the variable perception of risks in internal controls (PRIC).

The same method was used for the variable professional skepticism. The skepticism trait captured by Hurtt's (2010) scale was calculated in digital spreadsheets, observing the reverse questions. Then, the weighted average of each of the skepticism characteristics was calculated: questioning mind, suspension of judgment, search for knowledge, interpersonal understanding, self-esteem, and autonomy. Finally, the sum of each skepticism characteristic was calculated to constitute the variable professional skepticism (PS).

In descriptive statistics, it was decided to use data from the skepticism scale and perception of risk scenarios in internal controls without calculating the weighted average, in order to facilitate the visualization of results. However, for regressions, data in weighted average were used, as described.

4.1 Descriptive Statistics: Profile of Internal Auditors, Perception of Risks in Internal Controls, and Professional Skepticism

Table 2 displays the profile of internal auditors participating in this research.

Table 2
Profile of internal auditors participating in the research

Characteristic	Category	n	%
Gender	Female	116	30%
	Male	266	70%
	Total	**382**	**100%**
Age	From 20 to 30 anos	118	31%
	From 31 to 40 anos	168	44%
	From 41 to 50 anos	74	19%
	51 years or older	22	6%
	Total	**382**	**100%**
Region	South	85	22%
	Southeast	237	62%
	Central-West	16	4%
	North	6	2%
	Northeast	38	10%
	Total	**382**	**100%**
Academic background	Incomplete undergraduate studies	6	2%
	Complete undergraduate studies	118	31%
	Specialization	231	60%
	Master's degree	25	7%
	Doctoral degree	2	1%
	Total	**382**	**100%**
Position	Junior Internal Auditor	14	4%
	Full Internal Auditor	29	8%
	Senior Internal Auditor	63	16%
	Internal Auditor	164	43%
	Specialist	17	4%
	Analyst	10	3%
	Manager	81	21%
	Director	4	1%
	Total	**382**	**100%**
Time in the role	Up to 1 year	89	23%
	From 2 to 5 years	169	44%
	From 6 to 10 years	83	22%
	From 11 to 15 years	24	6%
	16 years and over	17	4%
	Total	**382**	**100%**
Revenue (in R$) of the company in which they work	Up to R$ 4.8 million	24	6%
	Greater than R$ 4.8 million and less than or equal to R$ 300 million	89	24%
	Greater than R$ 300 million	269	70%
	Total	**382**	**100%**
Sector of the company in which they work (or the company referred to in the research)	Industrial goods	27	7%
	Non-cyclical consumption	46	12%
	Cyclical consumption	53	14%
	Communications	1	0%
	Financial	95	25%
	Public utility	36	9%
	Oil, gas, and biofuels	17	4%

Table 2
Cont.

Characteristic	Category	n	%
Sector of the company in which they work (or the company referred to in the research)	Basic materials	29	8%
	Information technology	11	3%
	Healthcare	26	7%
	Others	41	11%
	Total	**382**	**100%**
Who they report to/are subordinate to	Board of Directors	81	21%
	Chief Executive Officer	92	24%
	Audit Committee	153	40%
	Other	56	15%
	Total	**382**	**100%**
Internal audit	Company-owned	376	98%
	Outsourced	6	2%
	Total	**382**	**100%**
Company budget for internal audit	Yes	316	83%
	No	66	17%
	Total	**382**	**100%**

Source: *Prepared by the authors.*

Table 2 shows that the sample consists of 70% men and 30% women. This result is in line with other studies carried out with independent auditors, such as Cunha et al. (2019), Gullkvist and Jokipii (2013), and Haveroth and Cunha (2023). According to Campanhol and Barros (2016), the number of registered women in Brazil has been gradually increasing; however, a male predominance in the auditing scenario is noticeable.

The average age of internal auditors in the sample is 35 years, consistent with Bernd and Beuren (2017) and Larson (2004), whose average age was 37 years, and Magro and Cunha (2017), where around 70% of the sample had an average age between 26 and 40 years. The highest frequency in the sample was concentrated in the 31 to 40 age range, representing 44%, followed by the 20 to 30 age range, with 31%. The justification for these results may be the requirement for greater experience of professionals working in this segment, justifying the greater number of professionals over 31 years of age (Bernd & Beuren, 2017).

It is noticed that there were participants from all regions of Brazil, although most respondents were concentrated in the Southeast region (62% of the sample), followed by the South region (22%). Considering that the highest gross domestic products (GDPs) per capita are from the states in the Southeast and South regions (Instituto Brasileiro de Geografia e Estatística, 2018) and the largest population concentration is in the Southeast region, this result can be justified.

Regarding the education level, 60% of respondents had some specialization and 32% complete Higher Education. Participants with a Master's or Doctoral degree totaled 8% and only 2% of the sample did not complete Higher Education. The predominance of the sample with some lato sensu graduate course is consistent with the findings of Bernd and Beuren (2017), Gullkvist and Jokipii (2013), and Haveroth and Cunha (2023).

As for the name of the position held in the organization, a plurality of terms was observed according to the organizational structure in each company. However, only 22% of the sample had manager and director positions, while 78% of the sample were named internal auditors. Since this function can be divided into several levels, the sample highlighted the representation of senior internal auditors (16% of the sample), unlike the studies by Larson (2004) and Bernd and Beuren (2017), where managers predominated.

When it comes to company size, 70% of the sample of companies in which internal auditors work have a turnover of over R$ 300 million. This representativeness may be justified by the perspective that companies tend to increase the level of control when variables related to the size of the organization stand out (Mendes et al., 2017).

In addition, a survey by Deloitte (2015) indicates that, as organization size evolves, the number of companies without a formal internal audit structure decreases.

Concerning the segment in which the companies operate, it was observed that there was participation in all the sector classification proposed by B3. It is worth noticing that the segment with the greatest representation was the Financial (25%), followed by the Cyclical Consumption segment, which includes companies in the construction, textile, clothing and footwear, household goods, automobiles, hotels and restaurants, travel, leisure, and commerce sectors (14%). It is also worth of note that non-concentration of respondents in a single sector or in a few sectors brought an interesting plurality, since although each organization is different, the sector as a whole generally has a set of practices that are customary for the type of business in which they operate.

In addition to these characteristics, it was found that 40% of the internal auditors in the sample report to the Audit Committee. Next, 24% of the internal auditors in the sample report to the CEO and 21% to the Board of Directors. This result is in line with the good corporate governance practices developed by the Instituto Brasileiro de Governança Corporativa (IBGC, 2015), which states that internal audit should report directly to the Board of Directors or to the Audit Committee.

It was also asked whether internal auditing has its own budget, which the area manager can take action and make choices of their own. To this question, 83% of the sample answered yes. This is also a major characteristic, since internal auditing must have its own budget, approved by the board, to hire consultants for legal, accounting, or other issues, when it deems that the opinion of an expert is needed to carry out its activities, as proposed by the IBGC (2015).

Table 3 displays the descriptive statistics of the variables Perception of Risks in Internal Controls and Professional Skepticism.

Table 3
Descriptive statistics: Perception of Risks in Internal Controls and Professional Skepticism

Panel A – Descriptive statistics: Perception of Risks in Internal Controls					
Dependent variable	**Interval**	**Average**	**Standard deviation**	**Minimum**	**Maximum**
Scenario 1	1-5	3.644	1.081	1	5
Scenario 2	1-5	3.838	1.106	1	5
Scenario 3 *	1-5	2.408	1.204	1	5
Scenario 4	1-5	2.508	1.254	1	5
Scenario 5	1-5	3.751	1.062	1	5
Scenario 6	1-5	3.665	1.209	1	5
Scenario 7	1-5	3.243	1.128	1	5
Scenario 8 *	1-5	2.437	1.191	1	5
Scenario 9	1-5	3.469	1.281	1	5
Scenario 10 *	1-5	2.330	1.118	1	5
Perception of Risks in Internal Controls	10-50	31.293	4.538	21	46
Panel B – Descriptive statistics: Professional Skepticism					
Independent variable	**Interval**	**Average**	**Standard deviation**	**Minimum**	**Maximum**
Questioning mind	5-30	23.107	3.372	14	30
Suspension of judgment	5-30	23.380	3.428	9	30
Search for knowledge	5-30	27.403	2.780	16	30
Interpersonal understanding	5-30	22.835	3.941	16	30
Self-esteem	5-30	24.490	3.722	10	30
Autonomy	5-30	22.846	3.628	12	30
Professional skepticism	**30-180**	**144.060**	**12.879**	82	176

** Scenario without risks in internal controls.*
Source: *Prepared by the authors.*

By calculating the average values, it was possible to find out that 4 out of the 10 scenarios in Panel A had the lowest averages: Scenario 10 (average of 2.33); Scenario 3 (average of 2.41); Scenario 8 (average of 2.44); and Scenario 4 (average of 2.51). Scenarios 3, 8, and 10 had been prepared without addressing any risk

element precisely to avoid bias in responses. Scenario 4 involved the element revenue acknowledgment risk, where the possible risk existed at the time of revenue acknowledgment.

Scenarios 7 and 9 resulted in averages of 3.24 and 3.47, respectively. Scenario 7 addressed a possible risk of purchases under unfavorable commercial conditions. In this scenario, the risk lies in the internal controls for approving purchases. The quality of materials must have technical support and the auditor must investigate how the approval process, the limits of authority, and the registration of purchase orders are carried out. In turn, Scenario 9 involved a lifestyle change situation. There was no specific risk situation in internal controls, but studies in organizations with fraud signal that changes in employees' lifestyles were one of the *red flags* pointing out the possibility of fraud (KPMG, 2000).

Finally, the scenarios that showed the highest averages of risk perception were scenarios 1 (average of 3.64), 6 (average of 3.66), 5 (average of 3.75), and 2 (average of 3.84). In Scenario 1 there was a situation of segregation of functions, which characterizes the risk of the same person carrying out the receipt, verification, registration, and returns. Ideally, these processes should be carried out by different persons. In Scenario 6, the risk element was payment for overtime not worked.

The risk was that labor laws were not being followed in relation to the recording of overtime, daily limits, and intra-shift breaks. Scenario 5 involved a training situation in which the risk was in process changes and lack of standardization that could result in errors or failures in billing. The internal auditor should investigate whether these processes are effective, well-designed, and aligned with the team. The scenario with the highest average risk score was 2, which involved a bank reconciliation risk. In this scenario, the risk was that the reconciliation was performed manually, there were pending advances to long-standing suppliers, card sales, and pending bank fees that should not be included in the reconciliation.

In the descriptive statistics analysis of Panel B, of the independent variable Professional Skepticism, the analysis was carried out in general (sum of points) and for each of the six characteristics that make up skepticism. In the general analysis, the sum of the questionnaire points could vary between 30 and 180 points, while for the characteristics the variation could occur between 1 and 30 points.

It was noticed that the minimum score registered overall was 82 points and the maximum score was 176 points, getting close to the scale threshold. The average score for the skepticism scale was 144 points. This score is consistent with Sampaio (2017), which obtained an average of 145 points. Regarding the characteristics that constitute skepticism, the questions referring to Interpersonal Understanding and Autonomy resulted in lower averages, 22.83 and 22.85, respectively. The characteristics of Questioning Mind and Suspension of Judgment obtained similar averages, 23.11 and 23.38, respectively. Finally, the characteristics with the highest average were Self-Esteem (24.49) and Search for Knowledge (27.40).

In Sampaio (2017), the average values were very close, and the characteristics even followed the same scoring order. In Cunha et al. (2019) and Matthes et al. (2020), the characteristic Search for Knowledge also obtained the highest average compared to the other characteristics. These analyses are important, since the studies cited refer to research with independent auditors and this study focuses on the scope of internal auditing. Thus, it can be observed that both independent auditors and internal auditors had similar levels on the professional skepticism scale.

After analyzing the descriptive statistics, Cronbach's alpha test was performed with all the variables described in Table 2, altogether, and the result was 0.69. This value is close to 0.70, which is considered acceptable in the literature (Hair et al., 2009; Santos, 1999). ANOVA, VIF, and Durbin-Watson tests were performed in all regressions, with results that were within expectations. The Regression Specification Error Test (RESET), proposed by Ramsey (1969), was also performed, which is a procedure to test for the presence of two types of specification errors in a linear regression model: omitted variable and incorrect functional way. This test indicated that there are no omitted variables.

4.2 Relationship between Professional Skepticism and Perception of Risks in Internal Controls

Table 4 displays the results of the relationship between professional skepticism and perception of risks in internal controls, both by the total score of the skepticism scale and by the six characteristics of skepticism separately.

Table 4
Relationship between professional skepticism and perception of risks in internal controls

Panel A – Relationship between professional skepticism and perception of risks in internal controls					
Dependent variable	**Independent variable**	**Coefficient**	***T-statistic***	***P-value***	***r***
PRIC	Professional skepticism	0.066	2.32	**0.021****	0.118
Constant		7.61	9.30	0.000	
ANOVA: 0.021					
VIF: 1.00					
Durbin-Watson: 2.029					
Panel B – Relationship between the characteristics of professional skepticism and perception of risks in internal controls					
Dependent variable	**Independent variable**	**Coefficient**	***T-statistic***	***P-value***	***r²***
PRIC	Questioning mind	0.084	0.65	0.518	0.0260
	Suspension of judgment	0.066	0.62	0.538	
	Search for knowledge	-0.053	-0.35	0.726	
	Interpersonal understanding	0.149	1.41	0.159	
	Self-esteem	0.209	2.00	**0.046****	
	Autonomy	-1.048	-0.99	0.321	
	Constant	7.880	9.07	0.000	
ANOVA: 0.115					
VIF: 1.26					
Durbin-Watson: 2.028					

Note: *PRIC = Perception of Risks in Internal Controls. ** Significant at 95% level.*
Source: *Prepared by the authors.*

Table 4 shows that, through regression, a 95% relationship is found between PS and PRIC, providing evidence that confirms H_1, in which high levels of professional skepticism of internal auditors increase perception of risks in internal controls. The regression results suggest that the higher the level of professional skepticism, the greater perception of risks in internal controls. In the literature, several studies point out that the greater the skeptical trait, the lower the chances of fraud going unnoticed during the audit process (Hurtt, 2010; Hurtt et al., 2013; IAASB, 2012). The regression results indicate a positive and significant relationship between professional skepticism and perception of risks in internal controls, which demonstrates that a skeptical auditor is more likely to detect a possible control risk than auditors who have a lower level of skepticism.

When analyzing the six characteristics of skepticism individually, it is observed that Self-Esteem (SE) has a significant and positive influence on PRIC. Self-esteem is characterized as feelings of self-worth and belief in one's own abilities (Hurtt, 2010). Boush et al. (1994) indicate that auditors with low self-esteem do not have the confidence to believe in their own judgments and suggest that self-esteem is needed to resist attempts at persuasion and challenge someone else's conclusions. This finding, therefore, provides indications that self-esteem increases internal auditors' perception of possible risks in internal controls. A sufficient level of self-esteem allows the auditor to resist persuasion and challenge the opinions of others, remaining autonomous in the execution of audit procedures (Ciolek, 2017).

It is worth noticing that the auditor's professional skepticism trait, measured by using Hurtt's (2010) scale, was designed by taking into account characteristics from various areas of knowledge: psychology, philosophy, consumer behavior research, and auditing standards. The building of the scale, based on these areas of knowledge, contributed to a multidimensional construct, which involves the characteristics questioning mind, suspension of judgment, search for knowledge, interpersonal understanding, autonomy, and self-esteem (Hurtt, 2010). Professional skepticism is measured by considering all characteristics, although it is needed to verify which of the characteristics is contributing most to professional skepticism. Thus, when analyzing an individual characteristic to the detriment of the professional skepticism scale as a whole, it is possible to find characteristics that have significance to the

detriment of others, just as found in this research with the characteristic Self-Esteem. Other research studies have demonstrated similar situations, such as Haveroth and Cunha (2023), which identifies significance in the characteristics Self-Esteem and Autonomy, in addition to professional skepticism considering the set of six characteristics. Thus, for the analysis of the auditor's professional skepticism, the set of six characteristics that constitute Hurtt's (2010) construct should prevail. Further, in order to analyze the behavior of responses, which may be dispersed in relation to the average, the analysis was carried out using quantile regression. Table 5 displays quantile regression in the quantiles 10, 25, 50, 75, and 90, enabling the analysis between professional skepticism and perception of risks in internal controls in various quantiles.

Table 5
Quantile regression between professional skepticism and perception of risks in internal controls

Panel A – Relationship between professional skepticism and perception of risks in internal controls						
		Q10	**Q25**	**Q50**	**Q75**	**Q90**
Dependent variable	**Independent variable**	**Coefficient** *T-statistic* *P-value*	**Coefficient** *T-statistic* *P-value*	**Coefficient** *T-statistic* *P-value*	**Coefficient** *T-statistic* *P-value*	**Coefficient** *T-statistic* *P-value*
PRIC	Professional Skepticism	0.013 2.05 **0.041****	0.002 0.18 0.856	0.010 1.33 0.185	0.011 1.06 0.291	0.029 2.18 **0.030****
r^2		0.0079	0.0005	0.0039	0.0056	0.0238
Panel B – Relationship between characteristics of professional skepticism and perception of risks in internal controls						
		Q10	**Q25**	**Q50**	**Q75**	**Q90**
Dependent variable	**Independent variable**	**Coefficient** *T-statistic* *P-value*	**Coefficient** *T-statistic* *P-value*	**Coefficient** *T-statistic* *P-value*	**Coefficient** *T-statistic* *P-value*	**Coefficient** *T-statistic* *P-value*
PRIC	Questioning Mind	0.026 0.10 0.918	0.113 0.41 0.683	-0.099 -0.51 0.612	0.028 0.11 0.909	0.511 2.21 **0.028****
	Suspension of Judgment	0.010 0.20 0.840	-0.021 -0.43 0.666	0.042 1.37 0.171	0.002 0.03 0.973	-0.036 -0.80 0.423
	Search for Knowledge	-0.033 -0.67 0.503	-0.032 -0.80 0.424	0.004 0.15 0.878	0.004 0.07 0.944	0.042 1.00 0.320
	Interpersonal Understanding	0.036 1.24 0.215	0.027 0.93 0.353	0.021 0.71 0.480	0.035 1.05 0.296	0.057 1.83 **0.069***
	Self-esteem	0.053 1.28 0.201	0.023 0.49 0.622	0.030 1.20 0.232	0.027 1.07 0.284	0.038 1.73 **0.084***
	Autonomy	-0.009 -0.29 0.772	0.001 0.02 0.984	-0.023 -0.66 0.512	-0.037 -1.21 0.227	-0.011 -0.21 0.831
	r^2	0.0204	0.0054	0.0131	0.0128	0.0579
Durbin-Watson 0.745						

Note: *PRIC = Perception of Risks in Internal Controls.*** Significant between 0 and 1%; ** Significant between 1% and 5%; * Significant between 6% and 10%.*

Source: *Prepared by the authors.*

In this test shown in Table 5, quantiles 10 and 90 have a significant and positive relationship with perception of risks in internal controls. Quantile 90 has the highest coefficient of skepticism, with a significant and positive relationship.

In quantile 10 there was a positive and significant relationship between professional skepticism and perception of risks in internal controls, however, when analyzed individually, the characteristics of skepticism did not have any significant relationship. In the other quantiles (25, 50 and 75) there was no significant relationship between professional skepticism and perception of risks in internal controls, as well as there was no significant relationship with individual characteristics of skepticism.

Another major finding is that only in the quantile 90 there was a significant and positive relationship between some characteristics of skepticism, namely: Questioning Mind, Interpersonal Understanding, and Self-Esteem. The questioning mind attitude is linked to the auditor's continuous questioning of the information and evidence obtained before making a decision (AICPA, 2012; Hurtt, 2010). Hurtt (2010) points out that interpersonal understanding suggests the need to also consider human aspects of an audit when assessing evidence, which may be events or conditions that signal incentives or pressures; on the other hand, self-esteem is characterized as feelings of self-worth and belief in one's own abilities.

The results of linear regression and quantile regression provide evidence that confirms H_1, i.e. the higher the level of professional skepticism, the greater perception of risks in internal controls.

5. RESEARCH CONCLUSIONS AND RECOMMENDATIONS

This research aimed to analyze the relationship between professional skepticism of internal auditors and perception of risks in internal controls. Since professional skepticism is a necessary characteristic for audit quality, it was considered a possibility to diagnose whether this characteristic causes a greater perception of risks in internal controls.

Professional skepticism is a major concept in auditing practice. Studying the characteristics of professional skepticism in this context contributes to the discussion of this theme within the scope of internal auditing, which has proven to be a fruitful area for research. This study contributes to the discussion of these two themes (professional skepticism and risk perception), in which it is found that rather skeptical auditors have a greater perception of risks in internal controls. In the regression in which professional skepticism and perception of risks in internal controls are found, a positive and significant relationship was obtained, indicating the existence of a relationship between professional skepticism and risk perception in internal controls.

In addition to these theoretical contributions to regulatory bodies, that rather skeptical internal auditors have a greater perception of risks in internal controls, it is worth highlighting the theoretical contribution of scenarios as a measure of risk perception. The instrument was designed to verify the perception of risks in internal controls. The scenarios were validated with auditors and proposed as a means of observing the perception of risks in internal controls in real situations that auditors experience in their daily lives.

The results of the study prove that the recommendation to maintain a high level of professional skepticism is also valid in the context of internal auditing, since the level of professional skepticism of internal auditors influences the perception of risks in internal controls. When the characteristics of skepticism were analyzed individually, a positive and significant relationship was shown between Self-Esteem and Perception of Risks in Internal Controls. This finding highlights the importance of the auditor believing in his own insights to perform the audit procedures in a skeptical manner and not giving in to the pressure and persuasion that may be involved in the situation, maintaining his self-esteem.

Thus, these findings may help organizations strengthen and develop these characteristics in internal auditors, since the perception of risks in internal controls can prevent the risk from materializing and constituting an internal control deficiency or fraud. Although the professional skepticism scale adopted in this research is intended to measure the skeptical trait, a relatively stable characteristic (Hurtt, 2010), developed from a multidimensional perspective, training programs and actions that reinforce and encourage attitudes that involve the characteristics of a questioning mind, suspension of judgment, search for knowledge, interpersonal understanding, autonomy, and self-esteem can contribute to the maintenance and development of an internal auditor with a view to maintaining or increasing a skeptical stance in the role. This is key, as the internal auditor has close contact with the organization's auditees, requiring continuous monitoring of skepticism, which can be compromised by a loss of independence of the internal auditor. Even though the skeptical trait is a long-lasting characteristic of the auditor, situations that place them in a constant environment that encourages the loss of independence, for instance, may be a condition that contributes to the skeptical trait being impacted and reflected in the perception of deficiencies in the organization's internal controls, making this phenomenon opportune for further investigations.

As research limitations, it is worth noticing that, even after being validated by experts in the field, the scenarios developed may not fully reveal a real situation for respondents. Characteristics such as the company's industry, company size, and auditors' gender were used

in the scenarios to create a situation closer to reality for respondents. However, such characteristics may also cause bias in the responses.

The research sample consisted of accessibility, as LinkedIn® users accepted the invitation and accessed the questionnaire. This is a non-random sampling technique that, according to Fávero et al. (2009), has the disadvantage that there is no statistical guarantee that the selected sample is representative, although there is a significantly high probability that this occurs. Respondents are self-declared internal auditors, so there is no proof that they are in fact internal auditors. However, the number of respondents is expected to minimize this limitation.

As, for instance, scenarios 7 and 9 involved situations of possible purchase under favorable commercial conditions and a context of lifestyle change, one possibility is to deepen studies into the characteristics of the people who work in the company, to diagnose which circumstances or behaviors internal auditors perceive in people that arouse a desire to investigate the situation further.

It is recommended that further research be conducted on professional skepticism in internal auditing to strengthen the results found and to verify whether other variables, such as the period in which the research study was conducted, the economic context or cultural influence may have influenced it. The period in which the research was conducted took place in the last quarter of the year. This may have coincided with greater work demands for internal auditors who responded to the survey. Therefore, conducting the research study in another period may reinforce aspects of professional skepticism and perception of risks in internal controls or diverge from the results found. As for the economic context, there may be various impacts on internal auditing, such as budgetary constraints, changes in the company's appetite for risk, use of technologies to streamline work and/or reduce costs, for instance. Regarding cultural influence, one aspect that can be analyzed is the culture of the audit firm, which may have an aspect focused on audit quality or on achieving the audit firm's business goals.

Therefore, there are several research possibilities in this context of internal auditing. It is understood that professional skepticism and the perception of risks in internal controls are subjects that are rarely discussed in the context of internal auditing, but they are needed in auditing research. However, it is expected that this research contributes to the beginning of these discussions in Brazil.

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