

INTERNAL CONTROL AND RISK MANAGEMENT: THE PERCEPTION OF FINANCIAL MANAGERS IN PRIVATE HIGHER EDUCATION INSTITUTIONS

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ABSTRACT

The objective of this research is to identify and analyze the perception of a group of financial managers from private higher education institutions regarding the existence and applicability of internal control practices and risk management, and their effects on the financial area, in light of the COSO ERM (Enterprise Risk Management) model. This is a descriptive study, and the questionnaire, answered by 39 financial managers, consists of two parts: the first part identified the respondents' profiles, and the second is based on the COSO ERM model, featuring Likert-scale questions related to the eight components of COSO ERM's second dimension. The data were analyzed using Descriptive Statistics and the Chi-Square Test. The research revealed the respondents' perception of the level of alignment with the COSO ERM recommendations, which was influenced by years of experience, tenure in higher education institutions, and internal auditing practices. It was found that while internal controls and risk management practices are present in these institutions, there is a need for improvements in the current practices. This study contributes to practical application, academic research, and suggests future directions for further investigation into internal control practices and risk management in private higher education institutions.

Keywords: Internal Control. Risk Management. University Management. Private Higher Education Institutions. Financial Area.

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1 INTRODUCTION

Effective management of Higher Education Institutions (HEIs) requires internal rules and procedures that reflect administrative dynamics and ensure compliance with current legislation. There is a growing awareness of the importance of internal controls and risk management as essential tools for ensuring the financial sustainability and reputation of HEIs (Barreto, Callado & Callado, 2023). However, many institutions still face challenges in implementing these controls. Risk management, by mitigating limitations and enhancing the interpretation of financial indicators, supports strategic decision-making (Moreira et al., 2023).

Despite its recognized importance, there is a gap in the literature regarding the perceptions of financial managers on the adoption and effectiveness of internal control and risk management practices in private higher education institutions. This gap is particularly relevant considering the unique characteristics of financial operations in educational institutions, which may require adaptations compared to the risk management models used in other sectors.

In this context, the guiding research question is: **What are the perceptions of a group of financial managers from private HEIs regarding the adoption and implementation of internal control and risk management practices in the financial area, and what are the impacts of these practices? The research seeks to bridge this gap by providing insights into the extent to which such practices are adopted and their effectiveness in the educational environment, in light of the COSO ERM model.**

The general objective is to identify and analyze the perceptions of financial managers regarding the existence and applicability of internal control and risk management practices in the financial area of private HEIs, in light of the COSO ERM model. The specific objectives of the study include: 1) identifying the extent to which HEIs adopt and implement internal control and risk management practices in their financial areas; 2) analyzing whether these practices are formalized, automated, or manual; 3) verifying if they are aligned with the corporate governance model of the HEIs; and 4) identifying the outcomes resulting from the adoption of these practices.

The relevance of this research lies in the need for effective practices to prevent financial losses and protect the assets of HEIs, in addition to ensuring their long-term financial sustainability. The implementation of robust internal controls and risk management, in accordance with COSO ERM recommendations, is essential for mitigating risks and promoting excellence in the financial operations of HEIs (Batista & Ferreira, 2022).

2 LITERATURE REVIEW

Higher education in Brazil is an important economic sector, in which private HEIs stand out for their social and economic role. University management is of great value to these institutions, as decision-making is continuous. Managing a HEI requires the formulation of goals and strategies aligned with the institutional reality, as well as the resolution of conflicts. Effective management necessitates the development of internal rules and procedures that reflect the dynamic nature of administrative actions, assist in compliance with legislation, and serve as a management tool (Barreto et al., 2023).

Risk management and internal controls play a fundamental role in strengthening governance and ensuring the sustainability of HEIs. These practices are increasingly interconnected, offering a robust framework to safeguard assets, mitigate risks, and enhance operational efficiency. According to Khaw et al. (2023), enterprise risk management positively impacts financial processes, customer focus, internal processes, and the learning and growth performance of private higher education institutions in Malaysia, which reinforces the relevance of risk management practices as a central mechanism for institutional development.

The alignment of internal control practices with risk management in HEIs ensures regulatory compliance and enhances the institutions' ability to respond to emerging risks. The adoption of effective internal controls, such as segregation of duties, process standardization, and the use of automated systems, significantly contributes to asset protection and the prevention of fraud and errors. The corporate governance of these institutions is strengthened as senior management actively engages in continuous monitoring and feedback regarding the effectiveness of these controls, as demonstrated by Khaw et al. (2023), who highlight the positive influence of risk management on the performance of HEIs.

In practice, risk management establishes a continuous process of identifying and assessing threats that may affect various areas of the institution, such as finance, reputation, compliance, and academic operations. These risks may be operational, financial, technological, or even strategic in nature, and once identified, they are integrated into the institution's internal control system. In the context of a HEI, the risk assessment process may identify threats such as student attrition, dependence on a single source of funding, or vulnerability to cyberattacks. These risks should be addressed by implementing internal controls, such as student retention policies, diversification of revenue sources, and information security measures, among others.

The COSO ERM framework provides an integrated structure for risk management and internal controls, enabling HEIs to align their governance processes with strategic objectives. By integrating these practices, institutions can achieve greater operational efficiency and improved organizational performance, as risks are continuously monitored and controls are adjusted as needed. Riyadi, Yennisa, and Sagita (2021) emphasize that the synergy between internal controls and risk management directly contributes to the improvement of HEI performance.

HEIs with better governance tend to disclose more information about risk management, and this relationship is significantly influenced by the characteristics of the senior management team (Elmagrhi & Ntim, 2023). This suggests that the quality of governance plays a fundamental role in the transparency of risk disclosures and, consequently, in mitigating risks that could compromise the financial sustainability of HEIs. In private HEIs, the adoption of governance practices that promote the disclosure of financial and operational information can reduce uncertainty and improve stakeholder confidence, as discussed by Chicharro et al. (2023), who explore the relationship between stakeholder power and sustainability performance in UK HEIs.

Bamber (2023) stressed the importance of a comprehensive institutional approach to risk management. He argues that implementing risk management systems throughout the institution is essential to ensuring effective governance and operational sustainability, suggesting that the absence of formal risk management structures is a recurring challenge for many HEIs. This point is reinforced by Rashid, Akmal, and Shah (2023), who highlight the need for high-quality institutional governance to reduce financial risks, noting that institutions with superior governance structures are better able to mitigate risks, even in educational environments.

The trade-off between effective risk management, accounting-financial performance, and financial sustainability is a central theme in the literature. Rashid et al. (2023) indicate that institutional quality directly affects risk mitigation and financial performance, suggesting that effective governance practices reduce risks and contribute to robust financial management. It is essential for HEIs to adopt performance metrics and indicators that signal the efficacy of risk management such as capital adequacy, liquidity, and other financial indicators ensuring that the focus on risk mitigation does not compromise the institution's economic performance.

The literature review should emphasize the role of corporate governance practices applied to HEIs. As Finatto et al. (2023) demonstrate, integrating sustainability and governance practices within HEIs is crucial to ensuring these institutions' sustainable development. The study reveals that many HEIs face challenges in aligning their strategic plans with sustainability practices and

risk management, highlighting the need for a greater alignment between institutional strategy and governance.

In the Brazilian context, the work of Barreto, Callado, and Callado (2023) examined the application of the COSO ERM framework in a HEI, concluding that an internal control system aligned with COSO principles can be effective in mitigating risks and ensuring institutional sustainability.

Internal controls and risk management are essential for ensuring the efficiency and effectiveness of financial operations in HEIs, promoting transparency, equity, and corporate accountability (Souza, Bauer, & Coletti, 2020). The adoption of formal frameworks, such as COSO ERM, strengthens the internal control structure and integrates these practices into corporate governance, ensuring transparency in disclosures and the application of performance metrics that guarantee financial security and institutional sustainability (Araújo & Gomes, 2021; Barreto et al., 2023; Soares & Pinho, 2022). This holistic approach is fundamental to achieving strategic objectives and ensuring the sustainable development of HEIs.

2.1 Application of COSO ERM in Higher Education Institutions

COSO ERM (Enterprise Risk Management) is a benchmark in risk management and internal control, providing a comprehensive framework to support organizations in achieving their objectives. The model defines four categories of organizational objectives: Strategic, Operations, Reporting, and Compliance, and structures its framework into three main dimensions. The second dimension comprises eight interconnected components: internal environment, objective setting, event identification, risk assessment, risk response, control activities, information and communication, and monitoring (COSO, 2017). These components offer an integrated approach to managing risks effectively, ensuring that the organization is capable of proactively identifying and mitigating threats.

The third dimension reflects the organizational structure, delineating the responsibilities of each department and hierarchical level, thereby ensuring that information flows effectively to plan, organize, monitor, and control activities. COSO ERM is considered one of the best practices for developing robust internal control systems, enabling the creation of an interconnected structure that aligns with strategic objectives.

Recent studies highlight the increasing adoption of COSO ERM in HEIs, emphasizing its positive impacts on improving risk management and organizational performance. However, research also underscores the need for adaptations to tailor the model to the unique context of HEIs, thereby maximizing its effectiveness in the educational environment.

A study conducted by Barreto, Callado, and Callado (2023) at a Brazilian public higher education institution found that managers perceive their internal control system as aligned with COSO ERM standards. Nonetheless, statistically significant differences were identified in certain skills necessary for the effective implementation of the framework. This finding suggests that, although the structure is widely accepted, the training of managers is a critical factor for successful application especially in public institutions with limited resources.

Riyadi, Yennisa, and Sagita (2021) demonstrated that implementing COSO ERM in conjunction with an internal quality assurance system can significantly improve the performance of HEIs. The integration of internal controls, risk assessment, and strategic monitoring fosters greater operational efficiency and, consequently, enhanced educational performance, reflecting the applicability of the framework across various types of institutions, whether public or private.

Lucht (2023) presented a study on the implementation of a COSO ERM framework at Carnegie Mellon University, which integrated emergency preparedness and business continuity. This cyclical approach strengthened organizational resilience and increased risk awareness among

faculty, staff, and students. The study demonstrated that COSO ERM enhances the management of operational risks and fosters a culture of preparedness and resilience.

Kissoon (2021) examined the implementation of COSO ERM at the First Nations University of Canada, where the framework was used to integrate governance, risk and opportunity management, compliance, and financial reporting. The outcome was an improvement in decision-making and organizational performance, indicating that the framework can be an effective tool for governance and financial management in HEIs.

Rampini and Berssaneti (2022) conducted a comparative analysis between COSO ERM and the ISO 31000 standard, two risk management guidelines. Both frameworks have evolved consistently and exhibit important intersections with quality management, which reinforces the idea that risk management should be approached in an interdisciplinary manner in HEIs.

These studies provide valuable insights into the practical application of COSO ERM in HEIs, suggesting that although the framework is robust, its effective implementation depends on contextual factors such as organizational culture and available resources. Adaptations are necessary to ensure that COSO ERM meets the specific needs of each institution.

3 METHODOLOGICAL ASPECTS

This research is descriptive in nature. The participants were selected through a structured convenience sampling approach, based on the personal contacts of a co-author, considering the research objectives, the expected profile of the respondents, and their degree of decision-making autonomy. Managers in positions such as CEO, CFO, director, manager, superintendent, supervisor, and financial coordinator were included.

A questionnaire was used, comprising two sections: the first with questions about the respondents' profiles and the characteristics of the HEI; and the second with 32 items on a five-point Likert scale ranging from "strongly agree" to "strongly disagree." The items in the second section addressed the eight components of the COSO ERM's second dimension: internal environment, objective setting, event identification, risk assessment, risk response, control activities, information and communication, and monitoring.

A pilot test was conducted with four respondents, which highlighted the need for adjustments and improvements. Following this phase, the questionnaire was evaluated by three experts in internal control, risk management, and higher education institutions. Additional refinements were made before field application.

The questionnaire was sent to 1,171 respondents through three channels: emails to potential respondents with the support of SEMESP – the Union of Maintaining Entities of the State of São Paulo; the FINANCIÉS WhatsApp group – the Forum of Financial Executives from several Brazilian states; and via LinkedIn. A total of 65 responses were received, of which 26 were discarded as incomplete, resulting in a final sample of 39 complete and valid questionnaires.

The Internet, as a data collection channel, offers useful resources for surveys but also presents unique challenges (Schonlau, Fricker, & Elliot, 2002). Cendón, Ribeiro, and Chaves (2014) highlight the increasing trend of non-response rates, whose causes are beyond the control of the researcher. In a similar context, Peleias, Bito, Rocha, Pereira, and Segreti (2007) noted that "lack of response is a response."

Considering the final sample of 39 complete and valid questionnaires, the literature highlights that small samples can provide valuable insights when the participants are representative and have relevant experience (Vasileiou et al., 2018), which confers representativeness to the collected data. This is the situation observed in this research.

A larger number of complete and valid questionnaires was expected, which would have allowed for the use of more robust statistical analyses. However, this was not possible at this time,

in order to avoid selection biases and the limitations of a small sample. The current inability to conduct broader, more generalized analyses and to run more robust models considering the risk and performance metrics of HEIs does not diminish the relevance of the findings. On the contrary, they underscore the importance of the topic without exhausting it, highlight the respondents' perceptions, and extend the discussion toward more robust future studies.

4 PRESENTATION OF THE DATA AND DISCUSSION OF THE RESULTS

The analysis of the results was conducted in the following order: first, a descriptive analysis of the sample characterization, followed by an analysis of the statements and the non-parametric Chi-Square test (Siegel and Castellan Jr., 2006) corresponding to the eight components of internal controls that make up the second dimension of COSO ERM.

4.1 Descriptive Analysis: Sample Characterization

The analysis began with the characterization of the sample. Among the participants, 72% are male and 28% female. Regarding age, 49% are over 51 years old, 23% are between 41 and 50 years old, and 28% are between 26 and 40 years old. In terms of academic qualifications, 67% have completed a postgraduate degree, 16% have completed a master's or doctoral program, and 17% have a bachelor's degree. The majority (89%) have been professionally active for more than 10 years. Regarding experience in the HEI, the distribution is fairly even: 21% have up to 5 years of experience, 23% between 5 and 10 years, 18% between 10 and 15 years, 23% between 15 and 20 years, and 15% over 20 years.

For the positions held, 51% are CEOs/CFOs, superintendents, and directors, while 49% are managers, coordinators, supervisors, and others. All respondents affirmed that they have decision-making autonomy in their roles. The majority of HEIs (64%) are located in the Southeast region, with 36% in the other regions of the country. Regarding the administrative category as defined by the MEC, 49% of HEIs are non-profit non-beneficent, 41% are for-profit, and 10% are beneficent.

In terms of adopting internal control models, 72% of the HEIs have independent audits, and 51% have internal audits. Surprisingly, 84% of HEIs reported not adopting any specific internal control model, while 15% indicated adherence to frameworks such as COSO, SOX, ISO 9000, ISO 9001, or their own systems. The perceived advantages of adopting internal control methods and risk management include improved internal organization, enhanced brand credibility, cost reduction, and a better student journey experience, among others.

The profile of the participants reflects experienced managers with high academic qualifications, extensive professional experience, and a tendency to remain in HEIs for long periods.

4.2 Descriptive Analysis: Assertions

The codifications - 1: strongly disagree (SD), 2: partially disagree (PD), 3: indifferent (I), 4: partially agree (PA), and 5: strongly agree (SA) - were maintained regardless of whether the statement was positive or negative. Following Hill and Hill's (2002) approach, responses that agree with a positive statement are considered equivalent to those that disagree with a negative statement. The analysis began with the evaluation of the control environment, which reflects the awareness and control culture within HEIs and serves as the foundation for the remaining components. The results are presented in Table 1.

Table 1
Analysis of the Assertions for the Construct: Control Environment

	Assertions	DT	DP	I	CP	CT	Median
Control Environment	12. Senior management considers internal controls essential for achieving objectives and supports their operation.	0 0%	0 0%	1 3%	7 18%	31 79%	5
	13. The Board of Directors periodically establishes guidelines for setting acceptable risk exposure limits.	2 5%	4 10%	6 15%	13 33%	14 36%	4
	14. I possess full knowledge and mastery of the institutional internal controls without any significant difficulties.	0 0%	1 3%	1 3%	16 41%	21 54%	5
	15. My team has complete knowledge of internal financial controls.	0 0%	4 10%	0 0%	21 54%	14 36%	4
	16. In the financial area, procedures and operational instructions are standardized and documented in formal records.	2 5	4 10	2 5	18 46	13 33	4
	17. In the financial area, the bank reconciliation process is performed daily and is duly formalized.	0 0%	2 5%	0 0%	5 13%	32 82%	5
	18. The HEI uses an automated system to manage cash flow.	5 13%	4 10%	0 0%	16 41%	14 36%	4
	19. In the accounts payable process, the person who records the obligations (payments) is also the one who authorizes them.	30 77%	3 8%	1 3%	1 3%	4 10%	1
	20. The person responsible for asset management (receivables) is also the one who makes the accounting entry.	28 72%	5 13%	2 5%	1 3%	3 8%	1

Source: Prepared by the authors based on the research data.

When analyzing the control environment, it is observed that 86% of managers agree with the adherence to the practices recommended by COSO ERM, which suggests significant alignment with the proposed internal control model. It is important to highlight that the lack of segregation of duties in critical areas, such as accounts payable and receivable (13% and 11%, respectively), points to a gap that could compromise the effectiveness of the control environment and increase operational risks. The absence of segregation is a key concern, as the division of responsibilities is essential to mitigate the risk of errors and fraud. These findings are consistent with Taveira, Silva, and Callado (2016), who emphasized the crucial role of the control environment in achieving organizational objectives.

The role of senior management is also a critical issue. The 97% agreement regarding leadership support for internal controls reflects a strong commitment to reinforcing these controls. However, the lack of standardization in some operational procedures and the 23% disagreement regarding the use of automated systems for financial management indicate opportunities for improvement. The literature emphasizes that a robust control environment is directly dependent on the involvement and awareness of senior management, who must continuously promote process adequacy and alignment with best practices (Collier, Berry e Burkey, 2006)

The objective-setting construct is a prerequisite for event identification, risk assessment, and risk response, as proposed by COSO (2017). Managers need to be familiar with the objectives, mission, vision, and values of HEIs in order to guide and align risk appetite. This is illustrated in Table 2.

Table 2
Analysis of the Assertions for the Objective-Setting Construct

	Assertions	DT	DP	I	CP	CT	Median
Objective Setting	21. The HEI has clear and well-defined objectives, mission, and values that are formalized and communicated to all employees (both internal and external).	2	7	1	7	22	5
	22. It is common practice for the HEI to establish a strategic plan that outlines clear objectives aimed at achieving its goals.	4	7	3	8	17	
		5%	18%	3%	18%	56%	
		10%	18%	8%	21%	44%	

Source: Prepared by the authors based on the research data.

Regarding objective setting, 23% of managers disagree that HEIs have clear, well-defined, and formalized objectives, mission, and values. This lack of clarity can compromise the institutions' ability to align operations with their strategic goals. Furthermore, the perception that 28% of managers consider the strategic planning process inadequate suggests a failure in internal communication and in the implementation of these guidelines.

This misalignment can negatively impact the performance of HEIs, especially in a context where the Institutional Development Plan (PDI) is mandatory and essential for long-term planning. The absence of a well-structured and effectively communicated strategic plan compromises the ability of HEIs to identify and manage risks efficiently, hindering the implementation of continuous improvements (Pértile et al., 2013).

In the next section (Table 3), the COSO ERM framework (2017) emphasizes that event identification requires an understanding of both external and internal factors that can generate positive and/or negative impacts on strategy implementation, as explored in questions 23 and 24.

Table 3
Analysis of the Assertions for the Event Identification Construct

	Assertions	DT	DP	I	CP	CT	Median
Event Identification	23. There is a clear identification of the critical processes that may pose risks to the HEI (risk matrix).	4	3	2	19	11	4
	24. The risks identified in the financial area do not affect the HEI. For example, fraud.	20	4	1	8	6	
		10%	8%	5%	49%	28%	
		51%	10%	3%	21%	15%	

Source: Prepared by the authors based on the research data.

The identification of critical events, as indicated by 77% of managers, reveals that the majority understand the inherent risks in HEI operations. However, the 18% disagreement suggests that a significant portion of managers does not have a clear view of which processes are considered critical. This lack of consensus may lead to an inconsistent approach to risk management, exposing the institution to vulnerabilities that could otherwise be prevented.

The perception of financial fraud is concerning. Although 62% of managers acknowledge the risk, the 36% who disagree indicate that a substantial number of managers underestimate this risk. Such divergence in assessing the severity of fraud could compromise the effectiveness of mitigation strategies. As Massaiani, Oliveira, and Oliva (2017) recommend, the implementation of robust controls and regular audits is essential to ensure that fraud is prevented and detected early.

Risk assessment is crucial for an organization to determine the extent to which potential external or internal events may impact the achievement of objectives, allowing it to identify which risks exist and how they should be managed (COSO, 2017). These results are presented in Table 4.

Table 4
Analysis of the Assertions for the Risk Assessment Construct

	Assertions	DT	DP	I	CP	CT	Median
Risk Assessment	25. The HEI understands the risks present (both internal and external) that may occur at both strategic and operational levels.	0 0%	1 3%	1 3%	18 46%	19 49%	4
	26. Financial risks may significantly influence the achievement of the institution's objectives, mission, and values.	0 0%	1 3%	0 0%	12 31%	26 67%	5
	27. Risk management bureaucratizes the HEI.	7 18%	10 26%	6 15%	11 28%	5 13%	3
	28. Risk management is the responsibility of senior management.	7 18%	8 21%	2 5%	17 44%	5 13%	4
	29. The HEI does not have indicators to monitor risks.	10 26%	10 26%	2 5%	10 26%	7 18%	2
	30. All employees are responsible for risk management	5 13%	3 8%	2 5%	10 26%	19 49%	4

Source: Prepared by the authors based on the research data.

The risk assessment in HEIs reveals a positive scenario, with 95% agreement on the clear identification of internal and external risks. However, the issue regarding the existence of adequate indicators to monitor these risks highlights an area for improvement, as 52% of managers disagree that their HEIs have such indicators. This gap undermines the institutions' ability to proactively monitor risks and implement agile responses (COSO, 2017).

The lack of clear indicators hinders risk management, as it complicates continuous monitoring and the adaptation of strategies in response to changes in the regulatory and operational environment. Regarding responsibility for risk management, 57% of respondents attribute it to senior management, while 75% believe that all employees share this responsibility. Melo and Leitão (2021) affirm that everyone within the organization can contribute to the quality of internal controls, underscoring the importance of transparent actions and the collective support necessary for effective risk management (COSO, 2017).

To enhance risk assessment in HEIs, it is recommended to implement continuous and adaptable processes aligned with changes in the external environment, as well as to adopt clear indicators for risk monitoring. Promoting a risk management culture that involves all employees can strengthen controls and ensure the efficacy of risk management.

After identifying risks, it is essential to define the risk response process by evaluating both the probability of occurrence and the potential impact (COSO, 2017). Table 5 shows that 74% of managers agree on the treatment of risks with high impact and high probability, and 66% indicate that the financial manager is aware of the contingency plan, aimed at ensuring the sustainability of HEIs.

Table 5
Analysis of the Assertions for the Risk Response Construct

	Assertions	DT	DP	I	CP	CT	Median
Risk Response	31. The HEI addresses the risks identified as having a high probability of occurrence and high impact.	1 3%	6 15%	3 8%	22 56%	7 18%	4
	32. The Contingency Plan is known by the financial manager, approved by senior management, and is aimed at ensuring the sustainability of the HEI.	2 5%	9 23%	2 5%	11 28%	15 38%	4

Source: Prepared by the authors based on the research data.

Regarding the risk response, it was found that 74% of managers believe that high-impact risks are addressed appropriately. The 26% disagreement reflects the need for improvements in risk treatment practices, as this group of managers may be experiencing difficulties in effectively implementing contingency plans. The implementation of targeted training and enhanced communication about risk management practices could help align these perceptions and ensure effective responses (Soares & Pinho, 2022).

The integration of risk management with control activities, as highlighted by Araújo and Gomes (2021), is essential to ensure that risk responses are consistent and comprehensive, thereby protecting the sustainability of HEIs. This is illustrated in Table 6.

Table 6
Analysis of the Assertions for the Control Activities Construct

	Assertions	DT	DP	I	CP	CT	Median
Control Activities	33. There are policies and preventive or detection measures in place to reduce risks and achieve the HEI's objectives.	3 8%	5 13%	3 8%	18 46%	10 26%	4
	34. The control activities of the HEI are appropriate and operate in accordance with a long-term plan.	2 5%	5 13%	3 8%	20 51%	9 23%	4
	35. The control activities adopted in the financial area are comprehensive and aligned with the HEI's objectives.	1 3%	3 8%	2 5%	17 44%	16 41%	4

Source: Prepared by the authors based on the research data.

The analysis of control activities indicates that although 72% of managers agree that the controls are adequate for reducing financial risks, there is a significant gap to be addressed, as 18% of managers do not consider the control activities sufficient. This reflects the need for greater training of both managers and employees regarding the importance of control activities in daily financial management.

The results corroborate the findings of Silva, Gomes, and Araújo (2014) and Araújo, Libonati, Miranda, and Ramos (2016), who highlighted a significant difference between the practices observed in the surveyed HEIs and those proposed by COSO ERM. The implementation of control activities to mitigate risks is uncommon in HEIs, as suggested by Taveira, Silva, and Callado (2016), indicating that the low adherence may be due to a lack of understanding of the technical specifics of internal control.

Continuous training programs and periodic reviews of control activities are recommended to ensure that all stakeholders understand their responsibilities and the role of internal controls. This will help align HEI practices with COSO ERM standards, thereby contributing to effective risk management and institutional sustainability.

Regarding the Information and Communication component, the COSO ERM framework recommends that communication reflect the importance and consistency of risk management by conveying the values of senior management to the managers. These recommendations were evaluated in questions 36 to 40. as presented in Table 7.

Table 7
Analysis of the Assertions for the Information and Communication Construct

	Assertions	DT	DP	I	CP	CT	Median
Risk Assessment	36. Important information is identified, documented, stored, and communicated to the appropriate personnel.	1 3%	2 5%	3 8%	16 41%	17 44%	4
	37. The HEI identifies, captures, processes, and communicates information to managers, enabling them to make appropriate decisions.	0 0%	5 13%	2 5%	15 38%	17 44%	4
		0	6	2	19	12	4

38. The information available to employees regarding internal controls in the financial area is appropriate, up-to-date, and accessible.	0%	15%	5%	49%	31%	
39. Communication reaches individuals at all hierarchical levels of the HEI, in all directions within the governance structure.	2	12	5	16	4	4
	5%	31%	13%	41%	10%	
40. Communication about risk management within the HEI is not adequate.	4	9	8	10	8	3
	10%	23%	21%	26%	21%	

Source: Prepared by the authors based on the research data.

It was found that 85% of managers believe that information is adequately identified, documented, stored, and communicated, while 8% are not satisfied with this process. Regarding communication with managers, 82% agree that it is effective, with 13% disagreeing. In question 38, 80% of managers consider the information on internal controls in the financial area to be appropriate, up-to-date, and accessible, although 15% disagree.

These data indicate an overall positive view, but also highlight areas in need of improvement, particularly in the dissemination of critical information on control and risk management. The results from questions 39 and 40 shows that 51% of managers believe that communication reaches all hierarchical levels, while only 33% consider communication about risk management to be adequate. These findings suggest a shortfall in the dissemination of risk management information and in aligning control activities.

According to Rae, Sands, and Subramaniam (2017), there is a direct association between the control environment and the information and communication component within the context of risk. The negative perception by some managers regarding communication compromises the effectiveness of risk management and can hinder informed decision-making.

In light of this scenario, it is evident that a clear and structured communication strategy is needed. HEIs should implement effective communication channels, conduct periodic training, and foster an organizational culture that values transparency and the sharing of information. Senior management must reinforce its commitment to effective communication, ensuring that risk management information is accessible, understandable, and relevant to all managers.

The continuous evolution of corporate risk management, as highlighted by COSO (2017), requires constant monitoring, as risk responses and control activities may lose effectiveness over time. This ongoing monitoring process is vital to ensure that control practices remain current and adequate. These results are presented in Table 8.

Table 8
Analysis of the Assertions for the Monitoring Construct

Assertions		DT	DP	I	CP	CT	Median
Monitoring	41. The internal control system is monitored to evaluate its validity and quality over time.	5	7	4	16	7	4
		13%	18%	10%	41%	18%	
	42. It is not a practice of the HEI's Board of Directors to hold periodic meetings to obtain feedback on the effectiveness of risk management.	5	6	4	13	11	4
	13%	15%	10%	33%	28%		
	43. The internal control system in the financial area is adequate and effective.	1	8	3	15	12	4
		3%	21%	8%	38%	31%	

Source: Prepared by the authors based on the research data.

The monitoring component is a crucial aspect of risk management and internal controls, and the research results reveal a mixed perception among managers. In question 41, 59% of managers have a positive perception of the validity and quality of the internal control system over

time. In the financial area, 69% of managers agree that the internal controls are adequate and effective (question 43).

However, question 42 brings to light a critical point: 61% of managers indicated that the Board of Directors does not hold periodic meetings to obtain feedback on the effectiveness of risk management. The absence of formal communication between the Board and managers can compromise the oversight and governance of the risk control process. The Board needs to be aware of the most significant risks and evaluate whether the responses to these risks are adequate. Rae, Sands, and Subramaniam (2017) emphasize that the quality of monitoring is directly linked to the effectiveness of the COSO ERM components, reinforcing the importance of robust corporate governance.

COSO ERM (2017) emphasizes that the internal control framework is an interactive and multidirectional process, where one component can influence another. The perception of managers (31%) confirms this description and the dynamic nature of internal control systems, highlighting that continuous monitoring needs to be enhanced. This suggests a clear opportunity for implementing improvements.

The introduction of a continuous monitoring system, as recommended by COSO, would help HEIs identify areas of vulnerability and ensure the effectiveness of control procedures. This would enable risk management in HEIs to become more proactive and effective, thereby strengthening the alignment of control activities with the institution's strategic objectives.

4.3 Non-Parametric Test Analysis: Chi-Square

The non-parametric Chi-Square test of independence was used to examine whether there are significant associations between the characteristics of financial managers and their perceptions of internal controls and risk management in HEIs. Respondents were grouped into categories of agreement or disagreement, without distinguishing between levels of agreement (total or partial). Table 9 presents the most relevant associations resulting from the Chi-Square test, detailed below:

Table 9

Summary Table of the Main Associations from the Chi-Square Test

Assertion	Variables										
	gender	age	Education Level	Time of Experience	Tenure at HEI	Location	Position	Adm. Category	Independent Audit	Internal Audit	IC Model
Control Environment											
Q 13.					0.09*						
Q 14.				0.00***							
Q 16.		0.08*									
Q 19.				0.06*							
Q 20.											0.09*
Objective Setting											
Q 22.	0.06*								0.08*		
Event Identification											
Q 23.				0.06*			0.09*				
Q 24.				0.05**					0.09*		0.09*
Risk Assessment											
Q 25.				0.05**							
Q 26.				0.09*							

Q 27.				0.07*	0.04**	0.03**						
Q 29.		0.09*										
Control Activities												
Q 33.						0.09*						0.02**
Q 34.						0.10*						0.03**
Q 35.						0.01**						
Information and Communication												
Q 36.					0.10*	0.09*						
Q 37.												0.10*
Q 39.						0.03**						0.09*
Q 40.						0.08*						
Monitoramento												
Q 41.						0.03**						0.07*
Q 43.					0.04**		0.01***		0.03**	0.03**		
		2	1	1	9	9	1	1	1	3	5	2
		6%	3%	3%	28%	28%	3%	3%	3%	9%	16%	6%
		*<10%	**<5%	***<1%								

Source: Prepared by the authors based on the research data.

Control Activities:

Age: Managers over 40 years old exhibited a more positive perception regarding the standardization and formalization of procedures in the financial area.

Experience: More experienced managers have a more robust understanding of internal controls and segregation of duties. Araújo & Gomes (2021) emphasize that experience is a critical factor for the effectiveness of control systems, corroborating our findings. While the existence of standardized norms contributes to efficiency, their absence suggests that the experience and knowledge of employees are essential.

Objective Setting:

Gender and Independent Audit: The analysis revealed a positive relationship between the presence of independent auditing and a favorable perception of the HEIs' strategic plan (PDI). According to Khaw & Teoh (2023), independent auditing is crucial for ensuring robust governance, offering an impartial perspective that contributes to better definition and monitoring of strategic objectives.

Event Identification:

Experience: Managers with longer tenure perceive critical risk points and the influence of financial risks on HEIs more effectively. According to Araújo & Gomes (2021), more experienced managers foster the development of the skills, knowledge, and abilities necessary for problem resolution, significantly contributing to the strengthening of risk management in HEIs.

Position: Managers in decision-making roles demonstrated a sharper perception of financial risks. This finding is consistent with the literature, which suggests that senior positions tend to have a clearer understanding of financial vulnerabilities, as observed by Pértille et al. (2013).

Independent Audit and Internal Control Model: These factors contribute to the accuracy of financial risk identification. According to COSO (2017), effective internal control systems, combined with external audits, are fundamental to ensuring that risks are identified and managed

appropriately, thereby reinforcing the reliability of financial operations and compliance with regulatory standards.

Risk Assessment:

Gender: An association was observed between the gender of managers and their perception of risk indicator monitoring, although specific literature on HEIs is limited. Studies in other sectors indicate that women tend to adopt a more conservative approach to risk perception, as highlighted in the *International Journal of Disaster Risk Reduction* (2020). Although this study does not directly address the context of HEIs, its conclusions suggest that gender differences may influence risk management in the educational environment.

Risk Response:

No evidence was found that managers' perceptions regarding risk vary according to their characteristics. It was concluded that, for the group of managers analyzed in this study, there is no relationship between their personal and professional attributes and their perceptions of internal controls and risk management.

Control Activities:

Time Working at HEIs and Internal Audit: These variables positively influence the perception of preventive policies and the effectiveness of control activities. According to Mihret & Grant (2017), internal auditing plays a crucial role in strengthening control activities and ensuring regulatory compliance, which is consistent with our findings.

Information and Communication:

Time Working at HEIs and Internal Audit: Both variables significantly impact effective communication and the dissemination of information about risk management across all hierarchical levels. This result aligns with the observations of Araújo & Gomes (2021), who emphasize the importance of a robust communication system for the effectiveness of internal controls.

Monitoring:

Time Working at HEIs and Internal Audit: These variables are fundamental for the continuous monitoring of the effectiveness of internal controls and financial procedures. COSO (2017) indicates that effective monitoring is essential to ensure that risk responses remain adequate over time.

The results indicate that characteristics such as age, years of experience, and independent auditing play a relevant role in managers' perceptions of internal controls and risk management. These findings are in accordance with the existing literature, as observed in Barreto et al. (2023) and Mihret & Grant (2017), which highlight the importance of these factors in improving internal control practices.

The study's limitations (sample size and the diversity of the institutions surveyed) suggest that further research is needed to confirm the generalizability of the results. Future investigations could explore in greater depth how these characteristics interact in different institutional contexts and how they directly affect the financial and operational outcomes of HEIs.

5 FINAL CONSIDERATIONS

The results obtained offer a comprehensive view of the perceptions of a group of financial managers from private HEIs regarding internal control practices and risk management. They meet the proposed objectives and reveal important insights into the current state of these practices. There was a high level of agreement among the managers regarding the mastery of internal financial controls, the standardization of bank reconciliation activities, the segregation of duties, and the perception of financial risks affecting the financial area and the institution's objectives (Araújo & Gomes, 2021).

The research confirmed that employees' understanding of their roles is essential for strengthening the internal control environment. Improving certain aspects of control and risk management practices can consolidate this structure within HEIs (Barreto et al., 2023). The implementation of risk management in HEIs faces challenges such as a lack of organizational culture and resistance to change, which are present in both public and private institutions. Studies show that adopting the practices recommended by COSO ERM can improve decision-making and reduce negative surprises, with significant benefits for the institutions (Araújo & Gomes, 2021).

There was a notable use of automated systems for managing cash flow, as well as the formalization of financial procedures in written documents, indicating that HEIs are investing in the standardization and automation of their financial operations. However, challenges persist in achieving effective communication, which is necessary for a more accurate risk assessment and informed decision-making (Soares & Pinho, 2022).

The support of senior management and the Board of Directors for internal control practices was recognized; however, the research highlighted the need to strengthen the frequency of meetings and the definition of clear guidelines for evaluating the effectiveness of risk management (Mihret & Grant, 2017). The adoption of these practices not only contributes to the protection of assets and the prevention of errors and fraud but also directly influences the risk culture and long-term sustainability of HEIs (Khaw & Teoh, 2023).

The findings underscore the importance of governance and the active participation of administrative boards in effective risk management. These results are significant for HEIs themselves, as well as for public policy makers, managers, and researchers interested in strengthening governance and sustainability in the educational sector.

The practical contributions of this study can serve as a basis for developing more efficient governance policies and strategies within HEIs. For future research, it is recommended to conduct a more in-depth analysis of the challenges faced in implementing internal control and risk management mechanisms, as well as to explore new approaches to enhance their effectiveness. A more detailed focus on the role of the Board of Directors in managing key financial risks would also be of great value in improving governance in the educational context.

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CONFLICT OF INTERESTS

The authors declare no conflict of interest regarding this submitted work.

AUTHOR CONTRIBUTIONS

Roles	1st Author	2nd Author	3rd Author	4th Author
Conceptualization	◆	◆		
Data Curation	◆			
Formal Analysis	◆			
Funding Acquisition				
Investigation	◆			
Methodology	◆	◆		
Project Administration	◆	◆		
Resources	◆	◆		
Software	◆			

Supervision		♦	♦	♦
Validation		♦		
Visualization	♦			
Writing – Original Draft	♦			
Writing – Review & Editing		♦	♦	♦