

# **Effective Internal Control Systems And Financial Risk Management: Evidence From Public Universities In Ghana**

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## **Abstract**

*This study explores the effect of internal control systems on financial risk management in public universities in Ghana. Financial risk management is vital for their stability. Internal control systems play a crucial role in managing financial risks and promoting transparency. However, public universities in Ghana encounter various financial risks, such as budget constraints, fraud, misappropriation of funds, and inadequate financial reporting. Effective internal control systems are necessary to mitigate these risks and ensure financial integrity. Data for the research were collected through a structured questionnaire administered to professional accountants, financial managers, and internal auditors in selected public universities. The findings reveal that while internal controls are generally effective, concerns exist, including management override of controls and resource misuse. Inconsistent policy adherence, confidence in asset safeguarding, and challenges in implementing internal control systems were also identified. The study emphasizes the importance of implementing effective internal control systems to manage financial risk in public universities. Recommendations include addressing management override, enhancing policy adherence, improving information and communication, strengthening monitoring activities, developing a comprehensive risk management framework, and fostering an ethical culture are offered. Implementing these measures can improve financial risk management, resource allocation, and accountability in Ghanaian public universities for their long-term sustainability and success.*

**Keywords:** *COSO, Internal Control Systems, Financial Risk Management, Public Universities, Ghana*

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## **I. Introduction**

Financial risk management is essential for guaranteeing the stability and longevity of any organisation, including public universities around the globe (Purcell, Henriksen, & Spengler, 2019). Public universities play a crucial role in the development of the education sector and the nation's overall progress. However, public universities frequently have constraints in terms of their financial resources, and any mishandling or depletion of cash can significantly undermine their capacity to deliver high-quality education and services (Matebese-Notshulwana, 2021). The Auditor General report on the financial accounts of public boards, corporations, and statutory institutions in Ghana, including public universities, highlights a concerning decline in financial accountability within these public entities. According to the Auditor General report, there has been a notable increase in irregularities over the years. In 2018, irregularities totaling GH¢3,007,258,924 (\$626, 512, 276) were identified, which surged to GH¢5,468,398,431(\$1,051,615,083) in 2019, marking an alarming 81.8% increase over the previous year. The situation escalated even further, with irregularities reaching GH¢17,483,483,539 (\$3,014,393,714) in 2021 (a 582% increase) and GH¢15,059,441,806 (\$1,792,790,691) in 2022 (a 500% increase) when compared to the 2018 figures (Auditor General Report, 2022).

The public universities in Ghana have demonstrated various breaches of regulations, resulting in financial irregularities (Badoo, Hammond, & Oppong, 2020). The Auditor General Report has revealed instances of financial irregularities, with the University of Cape Coast and its affiliated colleges and subsidiaries accumulating 25 cases of such irregularities as of 2019. The collective amount of these irregularities, as calculated by Corruption Watch, has reached a total of GH¢88,289,417.16. This amount constitutes 49.09% of the overall irregularities recorded among institutions falling under the Ministry of Education's purview. Additionally, the University of Ghana has faced criticism for failing to recover more than GH¢2.5 million in fees, and mismanagement of the university's land resources was highlighted in the 2022 Auditor General report. The financial irregularities observed in pre-tertiary schools in Ghana amounted to GH¢23,492,458.34 (\$4,517,780) in

2019, experiencing a 177% increase in 2020 before decreasing to 30% in 2022 (Auditor General Report, 2022). Meanwhile, the financial irregularities in technical universities were GH¢98,894,466 (\$20,603,014) in 2018, escalating by 172% in 2019 but eventually dropping to 21% in 2022 (Auditor General Report, 2022). These financial improprieties within Technical Universities have resulted in a significant financial loss of GH¢20,959,765 (\$2,495,210) to the state in 2022. The Auditor General's report identifies several factors contributing to these irregularities, including outstanding debtors, loans, and recoverable amounts, as well as cash, payroll, procurement, tax, stores, and contract irregularities. The root causes of these irregularities can be traced to failures in adhering to internal controls (Lartey, et al., 2023), inadequacies in internal control mechanisms (Ghaleb, Kamardin, & Al-Qadasi, 2020), and misapplication of financial practices (Garcia-Torea, Fernandez-Feijoo, & De La Cuesta, 2020) as outlined in various legislations, including the Public Financial Management (PFM) Act of 2016 (Act 921), among others.

The implementation of effective risk management strategies enables universities to proactively identify and mitigate possible financial risks, hence enhancing their ability to allocate resources more efficiently. Effective financial risk management is essential for these institutions to protect their financial resources, ensure accountability, and maintain public trust (Kamara, 2023). Public universities rely heavily on internal control systems to manage financial risks and promote transparency (Yao, Yushan, & Bah, 2017). Effective risk management has become crucial for the sustainability and success of public universities in the dynamic and ever-changing landscape of higher education. Financial mismanagement can have detrimental consequences such as generating adverse publicity and undermining public confidence, impacting enrollment rates, less support from stakeholders, and challenges in recruiting high-caliber of professors and staff (Newfield, 2018; Luthuli, 2022). Public universities are obligated to adhere to a range of financial laws and reporting obligations. Failure to comply with regulations can result in both legal and financial consequences. It can also lead to legal repercussions, monetary sanctions, and penalties, therefore diverting resources from academic pursuits (Widiatedja, 2022).

The implementation of effective internal control systems is of paramount importance in enhancing the management of financial risks at public universities. Internal control systems play a crucial role in the identification and evaluation of financial risks. These systems offer a systematic approach to risk mitigation through the implementation of controls and processes aimed at decreasing the probability of negative occurrences and minimising their consequences in case they do occur. The use of transparency fosters a sense of confidence among various stakeholders and serves as a deterrent against instances of fraudulent activities and mismanagement (Gulati, & Wohlgezogen, 2023).

Internal controls play a crucial role in fostering openness inside the institution by facilitating the provision of precise financial reporting and promoting accountability (Di Vaio, Varriale, Di Gregorio, & Adomako, 2022). The use of transparency fosters a sense of confidence among various stakeholders and serves as a deterrent against instances of fraudulent activities and mismanagement (Gulati, & Wohlgezogen, 2023). An adequately constructed internal control framework aids universities in the efficient allocation of their financial resources by identifying high-risk areas and guiding the allocation of resources toward measures aimed at mitigating these risks (Kabuye, Kato, Akugizibwe, & Bugambiro, 2019; Francis & Imiete, 2018). Nevertheless, public universities in Ghana face numerous financial risks, such as budgetary constraints, fraud, misappropriation of funds, and inadequate financial reporting (Abdulai, Salakpi, & Nassè, 2021). Management must implement effective internal control systems consisting of policies, procedures, and mechanisms to safeguard assets, ensure accurate financial reporting, and promote compliance with laws and regulations (Yao et al., 2017). The framework established by the Committee of Sponsoring Organisations of the Treadway Commission (COSO) encourages the implementation of internal control systems in both private and public sectors including public universities. The COSO framework emphasises five components: control environment, control activities, risk assessment, monitoring, and information and communication (Akinleye & Kolawole, 2020). It is expected that, by adhering to this framework, public universities can effectively mitigate financial risks by establishing robust internal control systems.

However, despite the existence of a frame, several universities in the country do not adhere to it. This raise concerns as to whether the framework is capable of improving the financial risk management situations of the universities. Given that there is no empirical assessment of whether and how the framework improves financial risk management, our study comes in handy for policymakers and management of the universities to ascertain the effectiveness of the framework.

Strong internal control systems positively impact financial risk management in higher education institutions, according to research conducted in other nations (Sofyani, Abu Hasan, & Saleh, 2022; Otoo, Asumah, Peprah-Amankona, & Andzie, 2021; Yudianto, Mulyani, Fami, & Winarningsih, 2021). These systems improve financial operations' transparency, accountability, and integrity, thereby decreasing the likelihood of fraud and financial malfeasance. Moreover, effective internal control systems assist public universities in meeting regulatory requirements, which are essential for preserving their reputation and credibility. Internal controls prove invaluable in the crucial area of risk management (Alabdullah, 2022). By conducting a thorough risk assessment,

public universities are able to identify and assess potential obstacles to their goals. Internal control systems help define how these risks should be managed, thereby minimising the incidence of financial irregularities and ensuring effective risk mitigation (Lartey, Kong, Bah, Santosh, and Gumah, 2020). Recent financial institution failures and suspicions of irregularities in Ghana's public universities have highlighted the need for robust accountability procedures. Internal control systems provide the necessary checks and balances to prevent mismanagement, misappropriation of funds, and resource waste (Nkak, 2020). By instituting robust internal controls, public universities can foster a culture of honesty, openness, and accountability, thereby protecting their financial profiles and ensuring the delivery of quality services. While the significance of internal control systems is widely acknowledged, their implementation may present obstacles (Erasmus, & Coetzee, 2018). Identifying the present internal control systems in use at Ghana's public universities is essential for understanding the existing gaps and improvement opportunities. Examining the effects of internal control systems on detecting financial irregularities and evaluating the obstacles encountered during implementation will provide valuable insights for improving risk management in these institutions.

The persistent loss of valuable resources and financial irregularities in Ghana's public universities require the implementation of efficient internal control systems (Badoo, Hammond, & Oppong, 2020). In Ghana, comparatively little research has been conducted on the effect of internal control systems on financial risk management in public universities. This study's primary objective is to evaluate the impact of internal control systems on financial risk management in Ghana's public universities. By examining the impact of internal control systems on financial risk management in Ghanaian public universities, this study contributes to the existing literature on internal control systems-financial risk management links. Further, the study comes in handy to provide university management and policymakers with practical insights. Enhancing internal control systems in these institutions will result in improved financial risk management, enhanced resource allocation, and increased accountability, ensuring the long-term success and viability of Ghana's public universities.

The rest of the paper is structured as follows. Section two synthesises existing empirical works on internal control systems and financial risk management to set the path pace for the current study. Section three details the methodology encompassing the study's population and sample, definition and measurement of key variables as well as the estimation strategy. In section four, results are presented while section five gives conclusions and recommendations to inform policy and improve practice.

## **II. Literature Review**

### **Theoretical Foundations**

The study is underpinned by Agency theory (Mitnick, 1975). Agency theory has been used extensively used by scholars to assess the information asymmetry between principals (shareholders) and agents (management) (Adams, 1994; Bendickson, Muldoon, Liguori, & Davis, 2016; Payne, & Petrenko, 2019). This study employed agency theory to investigate the effect of internal control systems on the financial risk management of Ghana's public universities. Agency theory, according to Sarens and Abdolmohammadi (2011), defines an organisation as a series of contracts between the proprietors of economic resources (principals) and managers (agents) responsible for utilising and regulating these resources. Jensen and Mecklin (1976) and Fama (1980) made significant contributions to the principal-agent paradigm. According to agency theory, the agency relationship entails one party, the principal, delegating tasks to another party, the agent. The agency relationship can result in various disadvantages due to the agent's opportunism or self-interest. For instance, the agent may not act in the principal's best interests or may act in their best interests only partially. This can manifest in a variety of ways, including the agent exploiting their power for personal benefit or failing to take risks aligned with the principal's interests due to a divergent risk attitude. In addition, information asymmetries between the principal and the agent can be disadvantageous for the principal because the agent is more knowledgeable. As the shareholders or citizens and government of Ghana, who are the owners of the public universities, have delegated the daily operations to the management as their agents, it is imperative to have robust internal control systems to safeguard the interests of shareholders and stakeholders. Therefore, agency theory supports a controlled environment, internal audit, and risk management.

### **Empirical Review**

Internal control systems are crucial to the effective management and administration of Ghana's public universities. These systems are intended to protect assets, guarantee accurate financial reporting, and prevent fraud and other irregularities. Several internal control mechanisms are typically in existence within the context of public universities. According to Ha Le and Tran (2018), the segregation of duties is one of the most prevalent systems for preventing fraud or error by assigning distinct responsibilities to various individuals. This is supported by Gupta, Mortal, Chakrabarty, Guo, and Turban (2020) argued that the separation of duties considerably reduces the likelihood of financial irregularities in public institutions. The establishment of internal auditing departments is a common form of internal control employed by many public universities. Research conducted by Nguyen and

Hoai (2023) demonstrates the significance of internal audit functions in evaluating the effectiveness of internal controls, identifying potential risks, and recommending improvements. In addition, technology-based controls, such as automated financial systems, have acquired traction in recent years (David-West, Iheanachor, & Kelikume, 2018). These systems ensure financial operations are accurate and efficient, thereby reducing the likelihood of errors and fraud. In recent years, public sector organisations have placed a greater emphasis on enhancing internal control systems. Numerous studies (Ayam, 2015; Hoai, Hung, & Nguyen, 2022; Karikari et al., 2023) have analysed the current systems and highlighted their various components and practices. For example, Owusu-Ansah (2019) conducted a study on internal controls in Ghana's public universities and identified key elements such as segregation of duties, authorization procedures, and regular internal audits. They emphasised the significance of an organisational structure that fosters responsibility and openness. Tetteh, et al. (2022) highlighted the use of information technology (IT) systems in internal controls in another study. Adopting IT solutions, such as Enterprise Resource Planning (ERP) systems, to automate processes and strengthen control measures was discovered to be beneficial. Collectively, these studies indicate that public institutions have acknowledged the importance of internal control systems and implemented various components to ensure effective governance and risk management.

Francis and Imiete (2018) argued that the presence of robust internal control systems can substantially influence the prevention and detection of financial irregularities in public universities. Effective internal controls can act as a deterrent against fraudulent activities, discouraging potential wrongdoers within an organisation, according to research conducted by Petraşcu and Tieanu (2014). Moreover, efficient internal control systems enhance the precision and dependability of financial reporting (Kewo & Afiah, 2017). By ensuring the completeness and accuracy of financial data, significant losses can be avoided through the prompt identification of irregularities. Moreover, internal control systems improve the accountability of public universities. According to a study by Velte, (2023), the combination of distinct lines of authority and responsibility with effective internal controls promotes transparency and reduces the likelihood of financial misconduct. Fernandhytia and Muslichah (2020) found that internal control systems improve compliance and ethics, minimising financial irregularities.

Public university internal control procedures decrease financial irregularities. Internal controls and financial anomalies have been studied extensively, generating valuable insights. Doyle, Ge, and McVay (2007) studied how internal controls affect financial anomalies. They found that effective internal controls reduce financial anomalies. Chang, Chen, Cheng, and Chi (2019) explored how internal controls affect financial reporting integrity. According to their results, effective internal control systems improve financial reporting accuracy, reducing anomalies. These studies highlight the importance of internal controls in preventing financial irregularities within public universities. They emphasise the importance of continuous improvement and monitoring of internal control systems to guarantee their efficacy in preventing financial misconduct. Implementing internal control systems in public universities can be fraught with difficulty. The complexity and diversity of university operations is one of the most formidable obstacles. Multiple departments and decentralised decision-making processes at public universities make it challenging to implement standardised internal control systems (Plant, van Hillegersberg, & Aldea, 2022). Insufficient financial resources and trained personnel can also hinder the implementation of effective controls (Doyle, Ge, & McVay, 2007). In addition, change resistance and organisational culture can impede the successful implementation of internal control systems. According to Paradeise and Thoenig (2013), organisations with long-standing traditions and resistance to change struggle to implement new control procedures. It takes strong leadership and a clear communication strategy to overcome resistance by emphasising the significance and benefits of internal controls. Despite the recognition of the significance of internal control systems, several obstacles hamper their implementation and effectiveness in Ghana's public universities. Researchers have identified these challenges and provided valuable insights for addressing them, but it appears that the Ghanaian context is unfamiliar with leas. A 2016 study by Guo, Huang, Zhang, and Zhou identified a lack of adequate resources and qualified personnel as a significant obstacle to the implementation of internal control systems. Budget restrictions prevent public universities from investing in robust control measures. The lack of internal controls experts limits system design and implementation (Hardiningsih, Udin, Masdjojo, & Srimindarti, 2020). Change resistance is another obstacle identified by Willis, Saul, Bevan, Scheirer, Best, Greenhalgh, and Bitz (2016). Frequently, the implementation of internal control systems necessitates modifications to organisational culture and practices. Resistance from staff members, especially those accustomed to traditional procedures may hinder the adoption of these systems. In addition, Thomran and Ahmed (2020) identified a challenge in the absence of awareness and training regarding internal control systems. The inability of university stakeholders to comprehend the significance and benefits of these systems can impede their successful implementation. Internal control systems are essential for assuring effective governance and reducing the likelihood of fraud and mismanagement. However, there appears to be insufficient empirical evidence in the literature regarding the specific challenges and practices associated with implementing these systems in Ghana.

### **III. Methodology**

The purpose of this study was to investigate the connection between internal control systems and the efficiency of financial risk management practices in Ghana's public universities. This study employed a cross-sectional design, as data were acquired at a specific point in time to evaluate the current relationship between internal control systems and financial risk management. Kabuye, Bugambiro, Akugizibwe, Nuwasiima, and Naigaga (2019) found that the cross-sectional research design provided a valuable framework for investigating the relationship between internal control systems and financial risk management in public universities, allowing for a comprehensive understanding of the topic within a specific timeframe and across multiple institutions. A structured questionnaire served as the primary data collection instrument. The questionnaire was developed based on a review of relevant literature, and it included questions measuring internal control systems and financial risk management practices at Ghana's public universities.

The population of 260 accountants, financial managers, internal auditors, and account officers in designated Ghanaian public universities. University of Cape Coast (UCC), University of Ghana (UG), Kwame Nkrumah University of Science and Technology (KNUST), University of Education, Winneba (UEW), and University of Development (UDS), among others, are among the selected universities. According to Krejcie and Morgan (1970), a population of 260 must have a minimum sample size of 113. As a result, 114 respondents were selected via purposive sampling to account for potential attrition and ensure that the required minimum sample size could be obtained. Utilising a technique of purposive sampling, respondents with knowledge and experience in financial risk management and internal control systems were selected. The research was authorised by the university administrations in advance. To maximise response rates, questionnaires were distributed electronically via email and WhatsApp, and reminders were sent. The questionnaire-collected quantitative data was analysed using appropriate statistical methods. Descriptive statistics, such as frequencies, means, and standard deviations, were employed to summarise the demographic characteristics of the respondents and the variables of primary interest. To examine the relationship between internal control systems and financial risk management, inferential statistical analyses such as correlation and regression analyses were conducted. For data analysis, statistical software such as SPSS and STATA were utilised. Throughout the research procedure, ethical considerations were carefully considered. Before conducting the research, informed consent was obtained from all participants to ensure their volitional participation. The strictest level of confidentiality was maintained by anonymizing and securely storing the data. The research design adhered to ethical guidelines and principles, protecting the rights and privacy of participants. In addition, potential conflicts of interest were disclosed, ensuring the findings' objectivity and transparency. Ultimately, the ethical considerations upheld the participants' dignity, privacy, and well-being while promoting the research's credibility and integrity.

#### **Measurement of Variables**

The main variables were financial risk management and internal control systems. The dependent variable is financial risk management which is operationalised in terms of financial risk prevention, risk detection and risk response (Kabuye, Bugambiro, Akugizibwe, Nuwasiima, & Naigaga, 2019; Coetzee, 2016; Safari, Faraji, & Majidian, 2016; Vinnari, & Skærbæk, 2014; De Zwaan, Stewart, & Subramaniam, 2011). The independent variable is internal control systems, which was measured using the COSO framework. This framework is a widely recognized internal control framework used by organizations to design, implement, and assess their internal control systems. It has five components such as Control Environment, Information and Communication, Control Activities, Risk Assessment, and Monitoring. The study adopted these five components to design the questionnaire. The Control Environment refers to the overall tone and attitude towards internal control and ethical behavior within an organization. It sets the foundation for all other components of internal control. The indicators for control environment are;

1. Leadership: The commitment of top management to ethics and integrity.
2. Organizational Structure: The clarity of roles, responsibilities, and reporting lines.
3. Ethical Values and Behavior: The emphasis on ethical behavior and the code of conduct.
4. Commitment to Competence: Ensuring that employees have the necessary skills and resources.
5. Board Oversight: The effectiveness of the board of directors in overseeing controls.
6. Accountability: Holding individuals accountable for their control responsibilities.

The information and communication component focuses on how information is captured, processed, and communicated throughout the organization, ensuring that relevant information reaches the right people at the right time. The information and communication indicators are;

1. Quality of Information: Accuracy, completeness, and relevance of information.
2. Timeliness: The speed at which information is communicated.
3. Channels of Communication: The effectiveness of communication channels.
4. Feedback Mechanisms: The presence of processes for feedback and reporting of control issues.

5. Clear Policies and Procedures: Existence of documented procedures for information processing and communication.

The third component, which is control activities, are the policies, procedures, and processes established to ensure that management’s directives are carried out and that risks are mitigated. The indicators that measure the control activities are;

1. Segregation of Duties: Ensuring that no single individual has control over all aspects of a critical process.
2. Authorization and Approval: The required approvals for various transactions and activities.
3. Reconciliation and Review: Regular reconciliation and review of accounts and transactions.
4. Physical Controls: Security measures for physical assets and access control.
5. IT Controls: Controls related to information technology systems and data security.

The next component of COSO is risk assessment, which involves identifying and assessing risks that could affect the achievement of organizational objectives. The indicators of risk assessment

1. Risk Identification: The process of identifying potential risks and vulnerabilities.
2. Risk Evaluation: Assessing the impact and likelihood of identified risks.
3. Risk Response: Developing strategies to manage or mitigate identified risks.
4. Scenario Analysis: Considering various scenarios to understand potential risk impacts.

The final component of COSO is monitoring which involves ongoing assessment of the effectiveness of the internal control system and making necessary adjustments. The indicators of monitoring are;

1. Internal Auditing: The effectiveness of internal audit functions.
2. Management Reviews: Regular reviews by management to assess control effectiveness.
3. Exceptions and Anomalies: Monitoring unusual activities and investigating exceptions.
4. Feedback Loops: Incorporating feedback into the control environment and making improvements.

#### IV. Results

The demographic information was collected to understand the characteristics of the respondents. This information includes gender, university, staff category, educational level, working experience, and professional qualifications of the respondents and the results are presented in Table 1.

**Table 1: Descriptive statistics of the respondents**

|                                    | Group                           | Frequency<br>(N=114) | Percentage<br>% |
|------------------------------------|---------------------------------|----------------------|-----------------|
| <b>Gender</b>                      | Male                            | 78                   | 68.4            |
|                                    | Female                          | 36                   | 31.6            |
| <b>university Name</b>             | UCC                             | 47                   | 41.2            |
|                                    | UG                              | 32                   | 28.1            |
|                                    | KNUST                           | 14                   | 12.3            |
|                                    | UEW                             | 10                   | 8.8             |
|                                    | UDS                             | 5                    | 4.4             |
|                                    | Other Universities              | 6                    | 5.3             |
| <b>Staff Category</b>              | Senior Staff                    | 74                   | 64.9            |
|                                    | Senior Member                   | 32                   | 28.1            |
|                                    | Others                          | 8                    | 7.0             |
| <b>Educational Level</b>           | HND/Diploma                     | 26                   | 22.8            |
|                                    | Bachelor’s degree               | 60                   | 52.6            |
|                                    | Master’s Degree                 | 28                   | 24.6            |
| <b>Working Experience</b>          | Below 1 year                    | 6                    | 5.3             |
|                                    | 1-5 years                       | 41                   | 36.0            |
|                                    | 6- 10 years                     | 27                   | 23.7            |
|                                    | 11- 15 years                    | 17                   | 14.9            |
|                                    | 16-20 years                     | 14                   | 12.3            |
|                                    | Above 20 years                  | 9                    | 7.9             |
| <b>Professional Qualifications</b> | Chartered accountant            | 62                   | 54.4            |
|                                    | Chartered Management Accountant | 6                    | 5.3             |
|                                    | Certified internal auditor      | 8                    | 7.0             |
|                                    | None                            | 38                   | 33.3            |

**Source: Field Data (2023)**

According to the results shown in Table 1, there exists a notable gender gap among the participants, with a higher representation of males compared to females. The inclusion of this factor has the potential to introduce bias and limit the applicability of the findings. The observation that a significant proportion of the participants in the study were affiliated with UCC and UG implies that the outcomes could provide a stronger representation of the internal control systems and financial risk management practices specifically employed by these institutions. The low representation of other universities may have constrained the generalizability of the findings to the broader context of public universities in Ghana. Once more, the study primarily concentrated on senior staff members, so providing insights into the viewpoints and encounters of individuals occupying higher positions inside academic institutions. Nevertheless, it is plausible that the viewpoints of other staff types may be insufficiently portrayed. A significant proportion of the participants possessed a bachelor's degree or above, suggesting a comparatively elevated level of educational attainment among the respondents. This implies that the results may be indicative of the viewpoints and encounters of individuals with specific educational attainment. The study's participants encompassed a diverse range of experience levels, with a notable proportion being in the nascent stages of their professional trajectories. The presence of diverse degrees of experience among professionals offers valuable perspectives on the perception and administration of internal control systems and financial risk management practices throughout different career stages. Finally, the significant percentage of individuals holding chartered accountant credentials among the participants indicates a substantial presence of accounting experts. The viewpoints and observations of these individuals might be particularly relevant in understanding the impact of internal control systems on financial risk management inside the public universities of Ghana.

In understanding whether management overrides the internal controls in the universities, Mean (M) and Standard Deviation (SD) were used to analyse the given statements, and the results are presented in Table 2.

**Table 2: Management Overriding the Internal Controls**

| Statement  | M      | SD      |
|--|--------|---------|
| The internal audit unit certifies all management requests.   | 4.4912 | .96161  |
| All cash received is accounted for   | 4.4561 | .94204  |
| There are procedures in place to ensure that asset additions, disposals, and transfers are accounted for | 4.4298 | .94043  |
| Payment vouchers are supported with receipts   | 4.3246 | 1.08486 |
| The institution prohibits the overriding of controls by management.                                      | 4.2018 | 1.21335 |
| Management sometimes uses university resources for their interests.                                      | 1.8772 | 1.30445 |
| There is only one signatory to the university account.   | 1.7456 | 1.16597 |
| Management sometimes uses their positions to get work done without following the laid down rules.        | 1.7368 | 1.26947 |

**Source: Field Data (2023)**

As shown in Table 2, the results suggest that the internal audit unit is actively involved in certifying management requests (M = 4.4912, SD = 0.9616). The high mean score indicates that there is widespread agreement that this control mechanism is in place and functioning effectively, with relatively low response variability. In addition, the results indicate that there are safeguards in place to ensure accurate accounting of all cash received (M = 4.4561, SD = 0.94204). The high mean score indicates a consensus that this control is consistently enforced, with relatively low response variability. Whether or not there are procedures in place to account for additions, sales, and transfers of assets. The results (Mean = 4.4298, SD = 0.94043) demonstrated the existence of asset-tracking procedures (Mean = 4.4298, SD = 0.94043). This indicates that controls are in place to ensure that asset additions, sales, and transfers are properly recorded. The results also revealed that university management sometimes uses their positions to get work done without observing the rules (Mean = 1.7368, standard deviation = 1.26947). This indicates that management occasionally disregards established guidelines when performing tasks.

In addition, the results indicate that respondents perceive instances in which management in Ghana's public universities uses university resources for personal gain (M = 1.8772, SD = 1.30445). The low mean score indicates that the majority of respondents disagree with this behaviour, indicating that it is uncommon. The findings (M = 1.7456, SD = 1.16597) indicate that public universities in Ghana have a single authorised signatory for their accounts on average. The low mean score indicates that the majority of respondents disagree with this practice, indicating a preference for multiple signatories. In addition, respondents believe (M = 1.7368, SD = 1.26947) that management in Ghana's public universities occasionally uses their positions to circumvent established rules when completing tasks. The low mean score indicates that respondents are generally opposed to this behaviour, suggesting that it is not perceived as a prevalent problem. There is general agreement that internal controls are in place and to a significant degree effective. However, the results revealed potential problems with management behaviour and potential control bypasses in Ghana's public universities.

To better understand the potential issues related to management behavior and potential overrides of controls, the respondents were asked to identify the challenges of implementing internal controls in public universities and the results is presented in Table 3.

**Table 3: Challenges of Implementing Internal Controls in Public Universities**

| Statement  | Mean   | SD      |
|--|--------|---------|
| Generally, the internal control systems in your unit at the university are effective         | 4.4737 | .88458  |
| The internal control system has resulted in the effective conduct of work                    | 4.4386 | .86254  |
| The implementation has made it possible for your unit to adhere to internal control policies | 4.2544 | 1.02025 |
| The internal control policies are able to prevent and detect fraud and errors in your unit   | 4.2456 | 1.03532 |
| The implementation of controls is accurate and complete in the keeping of financial records  | 4.2368 | .99825  |
| The unit is able to safeguard assets based on internal control policies                      | 4.2281 | 1.04784 |

Source: Field Data (2023)

The results indicate that most participants rated the efficacy of the internal control systems as reasonably high (M = 4.47, SD = 0.88), as presented in Table 3. This finding suggests that there is a general perception regarding the average efficacy of internal control systems. The distribution of responses is not widely spread, as seen by the moderate standard deviation. A significant proportion of participants (M = 4.44, SD = 0.86) agreed that the internal control system plays a crucial role in facilitating efficient operations inside academic institutions. The relatively low standard deviation indicates that there is a higher degree of uniformity. Furthermore, the findings suggest that the introduction of internal control systems has, on average, facilitated compliance with internal control rules within their respective units (M = 4.25, SD = 1.02). However, the higher standard deviation implies a larger range of responses, indicating that certain participants may have experienced challenges or discrepancies in complying with the regulations. Based on the obtained mean score of 4.25, it can be inferred that the participants hold the belief that internal control rules possess the capability to effectively mitigate the occurrence of fraudulent activities and mistakes inside the organisational unit. Nevertheless, the rather large standard deviation (SD = 1.04) indicates that there may be variations in beliefs and experiences concerning the effectiveness of these measures. Based on the obtained mean score of 4.24, it can be inferred that the respondents hold the belief that the application of controls in the financial record-keeping process is both accurate and thorough. The calculated standard deviation (SD = 0.998) suggests that there is variability in the views of correctness and completeness. Once again, the respondents exhibited a widespread consensus, as shown by a mean score of 4.23, that their respective institutions have the capability to protect assets through the implementation of internal control measures. A higher standard deviation implies the presence of differing levels of trust in the unit's ability to properly safeguard assets. Based on the descriptive data, it can be inferred that the internal control systems in public universities in Ghana are generally considered effective and supportive of job performance. The presence of inconsistencies in policy adherence, divergent perspectives on fraud and error prevention, and various degrees of confidence in asset protection are indicative of the possible difficulties that may arise during the deployment of internal control systems. The aforementioned findings highlight the need of tackling these barriers and guaranteeing the effectiveness and uniformity of internal control mechanisms at the public institutions of Ghana.

This requires the need to examine the effect of internal control systems on financial risk management in public universities. Therefore, this objective examines the effect of internal control systems on financial risk management in public universities in Ghana, and the results are presented in Table 4.

**Table 4: Effect of Internal Control Systems on Financial Risk Management**

| Model | Unstandardized Coefficients   |               | Standardized Coefficients | t    | Sig.         |      |
|-------|-------------------------------|---------------|---------------------------|------|--------------|------|
|       | B                             | Std. Error    | Beta                      |      |              |      |
| 1     | (Constant)                    | 7.062         | 2.375                     |      | 2.974        | .007 |
|       | Control Environment           | .869          | .323                      | .405 | 2.760        | .009 |
|       | Information and Communication | .797          | .273                      | .193 | 2.085        | .008 |
|       | Control Activities            | .679          | .333                      | .381 | 1.979        | .005 |
|       | Risk Assessment               | .624          | .279                      | .009 | 1.050        | .063 |
|       | Monitoring                    | .403          | .199                      | .076 | 2.517        | .010 |
|       | <b>R-squared</b>              | <b>.777</b>   |                           |      | <b>2.56</b>  |      |
|       | <b>F-statistic</b>            | <b>16.704</b> |                           |      | <b>0.000</b> |      |

Notes: The dependent variable is Financial Risk Management

Source: Field Data (2023)



As shown in Table 4, the R-square coefficient of determination, with a value of 0.777, suggests that around 77.7% of the variability in risk management can be explained by the independent variables included in the model. The standard error of the estimate is 2.56512, indicating the mean deviation between the observed values and the projected values of the model. The obtained F-statistic value of 16.70 demonstrates statistical significance at the one percent level, suggesting that the collective influence of internal control systems on risk management at Ghana's public universities is considerable. The F-statistic value of 16,704, together with its associated significance level, suggests that the model is a good match for the observed data.

Concerning the control environment, the correlation of 0.869 suggests that a one-unit increase in the control environment is correlated with a 0.869 increase in risk management. The beta coefficient of 0.405 suggests that the control environment exerts a relatively beneficial impact on the management of risk. The statistical significance level of the test is 0.009. The observed effect has statistical significance. In general, the findings of this study suggest that the presence of a strong control environment within the public universities of Ghana has a relatively favourable influence on the management of financial risks. The proposition posits that the implementation of efficient internal control systems can enhance risk management practices inside public institutions in Ghana. The coefficient of 0.797 suggests that there is a positive correlation between an increase in information and communication and an increase in risk management, with a magnitude of around 0.797%. The obtained coefficient of 0.19 indicates that there exists a mildly favourable relationship between information and communication and risk management. The statistical analysis reveals a significant impact ( $p = 0.008$ ), indicating that the observed association between information communication and risk management is unlikely to be attributed to random variation. This finding suggests that the improvement of information transmission inside the internal control systems of these institutions has a beneficial impact on risk management.

With regard to control activities, the coefficient of 0.679 suggests that a one-unit increase in control activities is associated with a 0.679% rise in risk management. The coefficient of 0.381, which is standardised, suggests that Control Activities exhibit a modest positive influence on Risk Management ( $p = 0.005$ ). The observed effect has statistical significance, and this suggests that the implementation of control activities, including internal rules, processes, and systems, holds significant significance in the effective management of financial risks inside the public universities of Ghana. The implementation of comprehensive policies and procedures for internal control systems has the potential to enhance financial risk management practices inside the public universities of Ghana. Overall, it can be inferred that the relationship between risk assessment and risk management at public universities in Ghana is characterised by a weak and statistically insignificant positive connection. This implies that there may be additional variables or factors that exert a more significant influence on risk management practices inside these institutions. Furthermore, it shows that the influence of risk assessment alone may not be sufficiently large to attain statistical significance. The coefficient of 0.403 for monitoring suggests that an increase of one unit in monitoring is associated with an increase of 0.40 units in risk management. The observed coefficient of 0.076 suggests that the practice of monitoring has a modest yet favourable impact on the effectiveness of risk management ( $p = 0.010$ ). The observed effect has statistical significance indicating that the integration of effective monitoring mechanisms into the internal control systems of public universities in Ghana has the potential to enhance financial risk management. The proposition posits that allocating resources towards the implementation of monitoring measures, such as periodic audits, evaluations, and checks, may facilitate the identification and mitigation of risks proficiently. Consequently, this can lead to an augmentation of financial stability and security inside educational establishments.

## **V. Discussions**

### **Management Overriding the Internal Controls**

According to the findings presented in Table 2, the results suggest that internal controls, such as the engagement of the internal audit unit in validating management requests and the accurate recording of cash received, are typically efficacious, as evidenced by a substantial consensus among survey participants. Nevertheless, there remain some areas that warrant attention. One of the salient findings is the occasional circumvention of established protocols by management in public institutions during the execution of activities. The present discovery aligns with the research conducted by Chan and Vasarhelyi (2008) about the efficiency of internal controls within higher education institutions. Their analysis revealed that the occurrence of management override of controls is a pervasive concern that has the potential to undermine the efficacy of internal control systems. Furthermore, the research reveals occurrences when the administration of public universities utilises university resources for personal benefit. Despite the indication of a low mean score, the observed conduct nonetheless warrants attention due to its potential to facilitate financial mismanagement and the misallocation of public funds. Similar findings have been observed in other studies as well. The study conducted by Al-Khadash and Abuaddoush (2017) examined the effectiveness of internal controls inside public universities in Jordan. The findings of the study revealed cases where university administration had utilised university resources for personal gain, hence emphasising the necessity for improved controls and supervision. Furthermore, the findings suggest

that public universities in Ghana often adhere to the practice of appointing a solitary authorised signature for their financial accounts, a preference that is not favoured by respondents who advocate for many signatories. The discovery aligns with the guidelines of optimal internal controls, which underscore the need of segregating responsibilities to deter fraud and uphold responsibility (Kogan et al., 2011).

### **Challenges of Implementing Internal Controls in Public Universities**

The results shown in Table 3 offer significant contributions to the understanding of the challenges encountered during the implementation of internal control systems in public institutions in Ghana. The presence of discrepancies in policy adherence, as seen by the higher standard deviation in responses pertaining to adherence to internal control rules, implies that certain respondents may have had difficulties in implementing and conforming to these regulations. The aforementioned discovery aligns with existing scholarly works (Cohen et al., 2014; Cosserat & Rodda, 2012), which underscores the importance of well-defined and effectively communicated regulations in establishing efficient internal controls. To effectively tackle this matter, it is imperative for public institutions to enhance their policy understanding, offer comprehensive training programmes, and establish robust methods to monitor and enforce policy adherence.

The necessity for continuous examination and development of internal control policies is underscored by the considerable variability in opinions and experiences regarding their efficiency in preventing and detecting fraud and mistakes, as seen by the very large standard deviation. Regular evaluation of internal control mechanisms is crucial for public universities to mitigate risks and ensure the integrity of financial operations. The aforementioned statement aligns with the scholarly literature's suggestions, which underscore the need for ongoing monitoring and evaluation of internal controls (Mihret & Yismaw, 2007; Pickett, 2013).

The presence of varying degrees of trust in protecting assets, as seen by the higher standard deviation of responses on safeguarding assets, suggests that there is a range of perspectives about the effectiveness of internal control systems in this domain. This discovery highlights the necessity for public institutions to establish comprehensive control systems for asset management and foster a culture characterised by accountability and responsibility. The significance of separating tasks, implementing physical security measures, and conducting frequent asset inventories to ensure effective asset protection has been emphasised by Romney and Steinbart (2015) as well as Arens et al. (2017).

### **Internal Control Systems and Financial Risk Management**

The findings of the study underscore the need of implementing efficient internal control systems within the realm of financial risk management at public institutions in Ghana. Firstly, it is proven that the control environment exerts a relatively favourable influence on risk management. This implies that the implementation of a strong control framework within the public universities of Ghana has the potential to enhance the efficacy of financial risk management procedures. The aforementioned discovery aligns with the existing body of scholarly work (Simons, 1995), which underscores the significance of a strong control framework in minimising risks and safeguarding the financial stability of companies. Public universities can provide a conducive atmosphere that fosters risk consciousness and fosters responsible financial behaviours through the implementation of efficient internal control mechanisms. These mechanisms encompass clear regulations, ethical principles, and institutions that promote responsibility. The second observation reveals that knowledge and communication exert a favourable, if limited, impact on the practice of risk management. This proposition posits that the augmentation of information and communication mechanisms within the internal control systems of public universities in Ghana might potentially provide enhancements in the efficacy of risk management protocols. According to Kaplan and Mikes (2012), the research emphasises the significance of effective communication in the identification, assessment, and mitigation of risks inside enterprises. Public universities have the potential to enhance their capacity to proactively detect and address financial risks by enhancing information flow, ensuring openness, and allowing the timely and correct reporting of financial data. The third observation reveals that control actions exhibit a relatively favourable influence on the management of risks. This highlights the significance of implementing comprehensive control measures, including internal rules, processes, and systems, inside the public universities of Ghana. The literature emphasises the importance of control activities in the management of risks and the maintenance of regulatory compliance (COSO, 2013). Public universities can safeguard their financial resources and uphold their image via the implementation of well-defined and extensive control measures. These actions serve to minimise the probability and consequences of financial hazards. Finally, it has been determined that the act of monitoring has a marginal, though favourable, effect on the practice of risk management. This suggests that the use of surveillance methods, such as periodic audits, assessments, and inspections, can effectively improve the management of financial risks inside public universities. The assertion is substantiated by scholarly literature, which posits that the timely identification and mitigation of threats need the implementation of efficient monitoring systems (Arens et al., 2019). Public universities can mitigate possible financial losses and preserve the integrity of their financial systems through the implementation of robust monitoring processes.

## **VI. Conclusions**

Although internal controls in public institutions are mostly efficient, there are certain areas of concern, such as occurrences of management override and misuse of resources. The issue of management engaging in the circumvention of internal controls is often seen inside public universities. The study's findings suggest that there are instances in which management inside public universities deviates from set laws and utilises university resources for personal aims. The aforementioned behaviour has the potential to impair the effectiveness of internal control mechanisms, leading to instances of financial mismanagement and the misallocation of public funds. The absence of a clear delineation of responsibilities within Ghana's public universities is a matter of considerable apprehension. This discovery aligns with the suggestions of established protocols in internal controls, which underscore the need of segregating duties to deter fraudulent activities and promote responsibility. The implementation of a system incorporating numerous signatures will enhance the internal control framework of public universities, hence mitigating the probability of financial irregularities.

Public universities in Ghana often encounter challenges when it comes to the implementation and adherence to internal control regulations. The presence of inconsistencies in policy compliance highlights the necessity for improved awareness, training, and monitoring and enforcement methods pertaining to policies. The establishment of effective internal controls necessitates the implementation of policies that are clear and effectively conveyed. Continuous examination and refinement of internal control measures are crucial in mitigating fraud and mistakes within public universities. The implementation of routine surveillance and assessment is essential to effectively manage risks and preserve the integrity of financial procedures. The level of security guarantee for the assets of public universities in Ghana varies. It is recommended that public universities institute comprehensive control mechanisms to manage their assets effectively. These mechanisms should encompass the segregation of roles, the adoption of physical security measures, and the regular conduct of asset inventories. Establishing a culture characterised by accountability and responsibility is vital in ensuring the efficient safeguarding of assets.

The installation of strong internal control systems is deemed crucial for financial risk management in public universities in Ghana, as evidenced by the effects observed. The establishment of a structured framework encompassing rules, ethical principles, and accountability mechanisms fosters a heightened awareness of potential risks and encourages the adoption of responsible financial practices. The facilitation of the discovery, appraisal, and mitigation of financial risks is enhanced through the promotion of transparency, reporting timeliness, and information flow. Effective control operations play a crucial role in managing risks, ensuring regulatory compliance, and safeguarding financial resources and reputation. The implementation of efficient monitoring systems plays a crucial role in the identification and prompt resolution of risks, therefore mitigating possible financial losses and safeguarding the integrity of financial systems.

## **VII. Recommendations**

To effectively address the issue of management overriding internal controls in public institutions in Ghana, it is imperative to prioritise the importance of sticking to specified rules and procedures. It is imperative for public universities to place emphasis on enhancing staff policy knowledge and delivering comprehensive training programmes to ensure constant adherence to internal control policies. It is recommended that public universities allocate resources toward the improvement of their internal control systems' information and communication capabilities. This entails ensuring openness, supporting the prompt and correct reporting of information, and enhancing the flow of information. To effectively oversee their operations, public universities should commit resources to the implementation of routine audits, assessments, and checks. This practice facilitates the prompt detection and alleviation of financial risks, the avoidance of potential financial setbacks, and the preservation of the soundness of financial systems. It is recommended that public universities in Ghana establish and execute a comprehensive risk management strategy that is specifically designed to address their unique organisational needs and objectives. The cultivation of a robust ethical culture should be seen as a paramount objective by personnel and those with vested interests at public colleges.

## **VIII. Limitations of the Study**

This study examines the impact of internal controls on financial risk management in public universities in Ghana using the COSO framework. However, it seems the study did not extensively consider external influences such as economic, political, and cultural factors on the efficacy of control. Incorporating these variables could result in a more comprehensive comprehension of the challenges that public universities confront. Other limitations of the study derive from its scope and methodology. Similar to other surveys, this one lacks follow-up inquiries, limiting our understanding of respondents' concerns. Future research ought to employ a mixed-methods strategy to resolve these limitations.

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### **Data availability**

Data is available on request.

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