



RESEARCH ARTICLE

The Role of Auditors Competency and Job Empowerment on Fraud Risk Assessment in the Jordanian Public Sector

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ARTICLE INFO**ABSTRACT**

Received: Aug 17, 2024

Accepted: Oct 23, 2024

Keywords

Audit Competence
Fraud Risk
Public Sector
Risk Assessment
Paired Comparisons
Financial Control
Public Audit

The purpose of the paper is to investigate the role of auditor competence and empowerment in assessing the risk of fraud in the public sector of Jordan. The object of the study is the public sector of Jordan. The scientific objective is to identify ways to improve auditor competence and empowerment in assessing the risk of fraud in the public sector of Jordan. The research methodology involves the use of the even comparison method by options. As a result of the study, the risks of fraud in the public sector of Jordan were assessed and compared in the context of auditors' activities. After the assessment, measures were proposed to counter the most important risks. The main limitation of this study is its focus only on the public sector of Jordan, which may not reflect the situation in the private sector or other countries with similar economic conditions. Future research may expand the scope of the analysis to include a comparative study of the private and public sectors in Jordan and other Middle Eastern countries to better understand the universality and specificity of the identified fraud patterns and methods for their assessment.

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1. INTRODUCTION**1.1. Global context: strengthening auditors' competence and empowerment to meet contemporary challenges**

In the modern world, challenges related to the effectiveness of public administration are growing, especially in the context of fraud in the public sector. One of the key responses to these challenges is the development of auditors' competence and expansion of their powers. With the deepening of globalization and the strengthening of market integration, the need for transparency and accountability of public institutions is growing.

Auditing is becoming not only a means of financial control, but also a strategic management tool that helps to identify and minimize the risks of fraud. The increase in the number of major financial scandals, such as Enron and WorldCom in the United States, has prompted a review of the role and powers of auditors at the international level. This has led to the creation of new standards and regulations requiring auditors to engage not only in cost control, but also in assessing management risks.

An important aspect is the digitalization of audit processes. The introduction of information technology contributes to more efficient collection, analysis and presentation of data, which is an integral part of the modern audit process. Digital tools such as artificial intelligence and machine learning allow auditors to analyze large volumes of data in more depth, which increases the accuracy of fraud detection. Ethical standards and professional ethics of auditors are also gaining new

importance. In the light of global scandals, consumers and citizens demand greater transparency in the actions of government agencies and enterprises. The development and implementation of codes of ethics is becoming a method of ensuring the trust of the public and investors.

The internationalization of the audit profession also plays an important role. Adaptation to international auditing standards, such as ISA (International Standards on Auditing), helps auditors from different countries to effectively cooperate and share best practices. This is especially important for developing countries, where auditing can contribute to greater stability and economic growth.

Also, strengthening international cooperation in the field of audit helps to standardize procedures and risk assessment methods, which increases the overall effectiveness of audit activities. Through international audit networks, professionals can quickly respond to new challenges and take into account the specifics of different economic systems.

Finally, it is important to remember the involvement of the public and stakeholders in the audit process. The development of technology provides new opportunities for citizens to monitor the activities of auditors, which in turn encourages auditors to work more openly and responsibly. In general, the development of auditors' competence and the expansion of their powers is a response to the growing challenges of our time, in particular the need to combat financial risks and fraud in the public sector.

1.2. Local perspective: transforming Jordan's audit practice in the age of digital innovation and increasing transparency requirements

In Jordan, the role of public sector auditors is particularly important amid the rise of fraud and the need to strengthen financial transparency. Jordanian public institutions play a key role in the allocation and use of public resources, so enhancing the competence of auditors and expanding their mandate is a critical aspect of ensuring effective governance and control.

In the Jordanian context, auditor competence is directly related to their ability to detect and combat fraud, which is a significant threat to the stability and development of the country's economy. Given the high level of public expenditure and the country's dependence on international aid, fraud in the public sector can have far-reaching consequences.

In Jordan, as in other emerging economies, the public sector faces increasing fraud risks, requiring auditors to pay special attention and strengthen their roles in financial control. These risks are exacerbated by the globalization of economic processes, the digitalization of financial systems, and internal factors such as political instability and corruption.

The increasing complexity of financial transactions in the public sector means that old audit methods are becoming less effective. The integration of new technologies and complex financial instruments requires auditors not only to have deep financial knowledge, but also to understand technological processes and their impact on financial transparency.

Digitalization of financial processes can lead to greater transparency and efficiency, but at the same time creates new opportunities for fraud. Artificial intelligence and machine learning used to automate audits can help identify anomalies and irregularities in accounting records, but they also require auditors to have new knowledge and skills.

Auditors in Jordan must adapt to the new environment by learning about digital tools and developing methodologies that enable them to effectively monitor complex technological systems. Empowering auditors and providing them with access to modern analytical tools can significantly improve audit efficiency and reduce fraud risks (Fig.1).

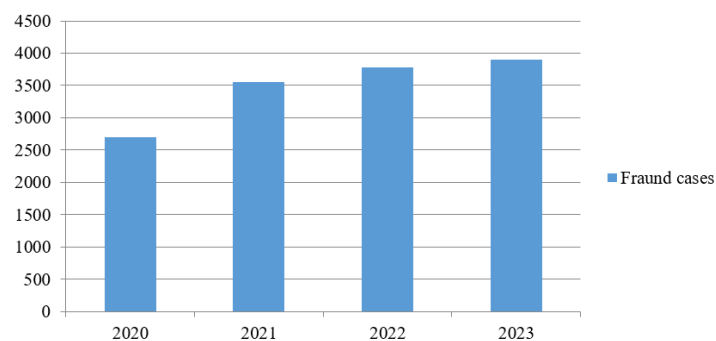


Figure 1: Number of fraud in Jordanian public sector from 2020-2023

In addition to technology, the role of professional ethics and international cooperation is also important. In Jordan, where corruption remains a significant problem, strengthening ethical standards and developing transparent procedures are key to restoring public trust in the public sector. Integrating international auditing standards and collaborating with international organizations can help Jordan strengthen its financial control systems and improve overall transparency.

Thus, in the context of Jordan, enhancing the competence of auditors and expanding their powers is a response to the growing challenges of the modern economic landscape. Strengthening the role of auditors not only ensures the fight against financial risks, but also contributes to the overall development and stability of the country.

1.3. Purpose and structure of the article

The purpose of the paper is to investigate the role of auditor competence and empowerment in assessing the risk of fraud in the public sector of Jordan. The object of the study is the public sector of Jordan. The article contains sections including a literature review, a description of the methodologies used, a presentation of the key research results, their analysis and conclusions.

2. LITERATURE REVIEW

2.1. Trends and challenges in public sector auditing: a global context

In order to properly analyze trends and issues in the study of the role of auditors in the public sector, studying modern scientific sources is essential. A thorough review of the literature allows identifying key aspects of the topic under study, identifying under-researched areas, and understanding the scientific context as a whole.

To assess the quality of financial reporting and the relationship between auditor independence and competence, Abbott et al. (2016) examined how these factors affect the reliability of reports. Their findings highlight the critical role of these characteristics in ensuring accuracy and transparency in the public sector, which is the basis for gaining public trust.

In terms of fraud detection, Drogalas et al. (2017) analyzes the role of internal audit effectiveness and the importance of continuous professional training of auditors. This study points to the need for systematic professional development of auditors to enhance their ability to identify potential financial abuses.

In the context of the influence of personal characteristics on audit performance, Al-Ebel et al. (2020) found that auditors' religiosity and accounting expertise can affect the timeliness of filing audit reports. Their research sheds light on the relationship between auditors' personal values and their professional performance.

Identifying the determinants of auditors' ability to detect fraud was the subject of analysis in the study by Wahidahwati and Asyik (2022). Their work highlights the importance of experience, education and specialized skills to help detect financial irregularities more effectively. Together, these studies provide a broad scientific context that allows our research to not only confirm its

relevance, but also to identify key areas for further development of audit methods and practices in the public sector.

2.2. Evolving audit powers and risk assessment methods: a comparative analysis

Developing audit mandates and risk assessment methods requires a thorough understanding of the interaction between the internal audit function and governance structures. Eulerich et al. (2017) highlights the influence of executive directors and audit committees on the work of internal auditors. The authors analyze how different governance structures affect the independence and effectiveness of internal audit, which has important implications for understanding auditor mandates.

In the context of sustainable development, Tubishat (2024) examine the factors that contribute to the implementation of sustainable development goals in regional and local planning. Their findings may be useful for auditors considering the risks and management strategies associated with sustainability and how these strategies can be integrated into the broader audit framework.

Ahrens and Chapman (2004) examine management control systems in a chain of commercial entities, emphasizing the relationship between management flexibility and operational effectiveness. This study highlights the importance of adaptive control systems that can be applied to risk assessment in the public sector, especially in the context of dynamic operating conditions.

Arena et al. (2017) examine the dynamics of integrated and disintegrated risk management in a comparative study. Their analysis provides insights into how organizations can optimize risk management processes to improve audit effectiveness.

Johnson and Thompson (2023) assess the risk management framework in public sector auditing. Their study provides important directions for developing audit practices in risk assessment and management, which is relevant for public sector auditors.

Patel and Kumar (2022) focus on the increased accountability that comes from effective risk assessment in public sector audits. Their findings highlight the importance of deep risk analysis to ensure transparency and accountability in the auditing profession.

Each of these studies makes an important contribution to understanding auditing practices and risk assessment, providing valuable directions for developing policies and practices in contemporary auditing.

3. METHODOLOGY

3.1. Research methodology: paired comparisons of options in audit performance assessment

In the context of the study, which focused on the role and competence of auditors in the Jordanian public sector, an important aspect was the analysis methodology. This study uses the even comparison method by options to evaluate different auditor strategies in identifying and assessing fraud risks. This approach allows for a detailed consideration and assessment of each possible scenario of auditor actions in the context of their ability to cope with specific challenges. Thanks to the paired comparison method, the researchers can systematically analyze the responses and decisions, ranking the effectiveness of risk mitigation tools. The peculiarity of the applied method is not just an even comparison of alternatives, but a detailed comparison by different options of audit interventions. This allows for taking into account not only the immediate results of audit activities, but also their potential impact in different conditions and contexts. This approach increases the depth of the analysis and provides a more accurate understanding of the effectiveness of audit strategies, taking into account the specifics of the Jordanian public sector.

3.2. Paired comparisons by options: methodology and its application in public sector auditing in Jordan

The paired-case comparison methodology used in the Auditor Competence and Authority Development Study in the Jordanian Public Sector involves a systematic evaluation of different audit strategies. This method allows each pair of strategies to be compared across different contexts, helping to identify which ones are most effective in detecting and combating fraud. The main

advantage of this approach is the ability to focus on specific courses of action and evaluate their relative effectiveness, providing an in-depth analysis of potential solutions.

Applying this method to the Jordanian public sector allows for the tailoring of audit procedures to local conditions, which is important for accurately assessing fraud risks. As such, the study has practical implications for improving audit policies and practices and developing more effective control strategies. Through an even comparison, it is possible to identify not only standard risks but also challenges specific to a region or sector, helping to provide a holistic risk picture.

However, the use of paired-case comparisons has certain drawbacks. The main problem is the difficulty in selecting criteria for comparison and the limited information, which may affect the accuracy of the results. The findings may be too dependent on subjective assessment by experts, which introduces an element of uncertainty into the conclusions of the study.

On the other hand, the advantages of the even-case comparison method include its flexibility and adaptability to the specific conditions of the study. The method allows researchers to identify nuances in the behavior of different strategies, taking into account the complexity of real-world situations in which they may be applied. This approach can help in making more informed audit policy decisions based on a comparative analysis of different strategies.

Overall, although the paired-case comparison method has certain limitations, its application in the study of audit activities in Jordan proves to be a useful tool for improving the effectiveness of audit processes. This method provides important indications for improving audit strategies and effectively combating fraud in the public sector.

4. REASERCH RESULTS

4.1. Fraud risk assessment in the Jordanian public sector

Auditors can be highly effective in assessing fraud risks in the Jordanian public sector. We will offer one of the methods. To do this, we will highlight the two most significant fraud risks that are popular in Jordan and give them the appropriate designations:

Z1. Procurement Fraud. This involves corrupt practices in the tendering process, such as bid rigging, or the manipulation of procurement guidelines to unfairly award contracts to certain vendors.

Z2. Payroll Fraud. This risk includes the creation of ghost employees, inflating hours worked, or issuing unauthorized bonuses, leading to misappropriation of funds through payroll systems (Fig.2).

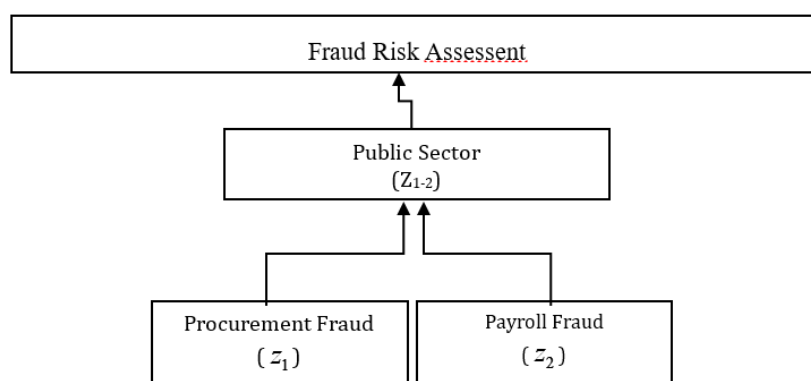


Figure 2: Fraud risk assessment in the Jordanian public sector

In assessing fraud risks in the Jordanian public sector, auditors often focus on two prevalent types of risks. The first significant risk is procurement fraud, which involves the manipulation or bypassing of processes to unfairly award contracts. The second key risk is payroll fraud, where false or inflated employee records and payroll transactions are used to divert funds. These categories represent the areas most vulnerable to fraudulent activities within public sector operations in Jordan.

4.2. An approach to fraud risk assessment

For our research, we applied an ordinal scale: 1 point indicates no risk and minimal impact; 2 points signify substantial risk with a moderate effect; 3 points denote high risks with maximum impact. We selected two risks, Z1 and Z2, to analyze their impact over the past year, 2023. We will construct convolution matrices for this period (Table 1).

Table 1: Convolution matrices for risks Z1 and Z2 during the 2023 period.

	Z1			
Z2	1	1	2	2
	2	2	2	3
	3	2	3	3

We consider the occurrence levels of various fraud risks as independent random variables. Therefore, we will present the probability distribution of possible risk values in the public sector in Table 2.

Table 2: Probability distribution of U values during the 2023 period.

Uij	Ui1	Ui2	Ui3
U1j	0.2	0.3	0.5
U2j	0.5	0.2	0.3
Uj3	0.3	0.5	0.2

We denote the probability of fraud risks in the public sector as λ_{ij}^{**} . Next, for clarity, we will describe all possible cases of the risks we identified, Z1 and Z2 (Table 3).

Table 3: Probability distribution of U values during the 2023 period.

All possible cases	λ_{ij}^{**}	Ui
Z1 and Z2 is min, j=1	λ_{11}^{**}	U11*U21
Z1 is min, j=1 and Z2 is max, j=3 Z1 is sign, j=2 and Z2 is min, j=1 Z1 is min, and Z2 is sign, j=2 Z1 is max, j=3 and Z2 is sign, j=2 Z1 is max, j=3 and Z2 is min, j=1	λ_{12}^{**}	U11*U22 U11*U23 U12*U21 U12*U22 U13*U21
Z1 is sign, j=2 and Z2 is max, j=3 Z1 is max, j=3 and Z2 is sign, j=2 Z1 and Z2 is max, j=3	λ_{13}^{**}	U12*U23 U13*U22 U13*U23

In this case, minimal public sector risks (λ_{11}^{**}) occur when (1):

$$\lambda_{11}^{**} = U11 * U21 \tag{1}$$

U11 and U21 – this is the probability of no change in the manifestation of risks Z1 and Z2.

Substantial public sector risks B (λ_{12}^{**}) occur when (2):

$$\lambda_{12}^{**} = U11 * U22 + U11 * U23 + U12 * U21 + U12 * U22 + U13 * U21 \tag{2}$$

U12 and U22 – this is the probability of a significant increase in the manifestation of risks Z1 and Z2.

Large public sector risks (λ_{13}^{**}) occur when (3):

$$\lambda_{13}^{**} = U12 * U23 + U13 * U22 + U13 * U23 \tag{3}$$

U13 and U23 – this is the probability of the maximum manifestation of risks Z1 and Z2.

Consequently, we will calculate the integral risk level (R) based on the average value of the integral assessments of the probability distribution (Table 4).

Table 4: Integral risk level (R) during the 2023 period.

λ_{ij}^{**}	λ_{11}^{**}	λ_{12}^{**}	λ_{13}^{**}
λ_{1j}^{**}	0.61	0.35	0.34
R ($1*\lambda_{11}^{**}+2*\lambda_{12}^{**}+3*\lambda_{13}^{**}$)	1.41		

The results of the modeling should be interpreted as follows. According to the adopted scale, risks of fraud in the public sector have a significant impact since the quantitative value is greater than 1 and approaches 2.

4.3. The auditor's role and his assessment capabilities

The role of auditors in the public sector, particularly in assessing fraud risks, is crucial for maintaining financial integrity and accountability. Auditors are tasked with systematically examining and verifying the financial records and processes of public institutions to ensure they adhere to established laws and regulations. They use their expertise to detect any irregularities or signs of fraud, providing an independent assessment that helps prevent financial mismanagement and corruption.

Auditors possess a unique set of skills and tools that enable them to identify and assess areas vulnerable to fraud. They conduct risk assessments to pinpoint specific sectors or processes prone to fraudulent activities, such as procurement and payroll in the Jordanian public sector. By highlighting these risks, auditors can recommend improvements and controls to mitigate them, thereby enhancing the overall governance and transparency of public entities. Their assessments are critical for stakeholders, including government bodies and the public, to trust that resources are being managed effectively and ethically.

5. DISCUSSIONS

5.1. Analysis in context: Comparison of results with existing research

To confirm the relevance and scientific novelty of our study, it is important to compare our findings with other relevant works in this area. This approach allows us not only to determine the extent to which our findings correspond to the generally accepted understanding, but also to identify the unique aspects and potential innovations that our study brings to the field of public sector auditing in Jordan. In this chapter, we discuss and analyze how our findings correlate with contemporary research, allowing us to understand the significance of our contributions in the context of the broader academic community. Significant challenges and strategies in public sector risk assessment are reflected in Zhang et al. (2021). The authors discuss the difficulties government auditors face in the risk assessment process. Our study extends this discussion by focusing on the specific competencies auditors must develop to improve their performance, contributing to the identification of areas for training and professional development.

Brooks and Edwards (2020) provide a detailed study of the role of internal auditors in the public sector, highlighting their responsibilities and ethical obligations. Our study is distinguished by its focus on risk assessment methods and the need to expand the audit mandate, providing a new perspective on management processes.

Ross (2012) provides detailed guidance for conducting risk assessments that can be used in a wide range of organizations. Our research project adds to this literature by providing specifics for the Jordanian public sector, highlighting the cultural and operational specifics that influence audit practices. Tubishat (2024) focuses on the legal support for sustainable development in the Middle East, which includes various aspects of audit and risk assessment. Our work focuses on audit risk assessment in the public sector, allowing for a more detailed study and implementation of effective methodologies within the specific context of Jordan.

Hammouri (2023) examines socioeconomic aspects in the context of the security dimension of criminal law in Jordan. This approach differs from ours, with an emphasis on a direct comparison of theoretical approaches and practical risk auditing, emphasizing the importance of auditors' competencies in fraud detection.

Bracci et al. (2022) conduct a systematic literature review on risk management and control systems in public organizations. Our study complements this work by focusing on adapting these systems to the specific challenges and conditions of the Jordanian public sector, providing an innovative approach to improving the effectiveness of audit activities.

5.2. Assessing the innovative potential of our findings

Free (2015) provides an in-depth review of the fraud triangle theory and prompts new directions of research in this area. He argues that existing approaches need to be updated to more effectively combat fraud. Our study extends this theory by detailing how specific auditor competencies and mandates can improve fraud detection and prevention practices in the public sector, which is a significant contribution to the practical application of this model.

Halbouni (2015) focuses on the role of auditors in preventing, detecting and reporting fraud in the UAE, noting the need to strengthen their training and ethical standards. In the Jordanian context, our study adds to this analysis by highlighting how specific areas of auditor competencies and mandates can improve their ability to adequately respond to fraud.

Hazami-Ammar (2019) examines internal auditors' perceptions of the audit function's ability to investigate fraud. This study identifies the importance of self-improvement of the audit profession and the development of internal procedures. In the context of our study, we identified new methodological approaches and specific actions that can improve the effectiveness of auditors in Jordan, providing them with a greater chance of successfully investigating fraud.

The study by Hoos et al. (2018) examines the impact of management training and reporting lines on the objectivity of internal auditors through an experimental study. An interesting aspect is the analysis of the interaction of these factors, which can reduce auditor objectivity. Our study complements these findings by offering structured methods to enhance auditor independence and objectivity, which is critical to improving audit processes in the Jordanian public sector.

Each of these sources provides a fundamental basis for understanding the current state of the audit activity and identifying ways to improve it. Our study brings new ideas and perspectives to this discussion by focusing on the specifics of the Jordanian public sector, which contributes to the further development of audit practices and theories.

By comparing the results of our study with similar works in this area, we can conclude that our study is highly relevant. Our findings not only correlate with global trends in auditing practice, but also make a significant contribution to understanding the specifics of auditing activities in the Jordanian public sector, which highlights the urgent need to develop auditors' competencies and expand their powers to more effectively detect and combat fraud.

6. CONCLUSIONS

6.1. General conclusions of the study

In this study, we therefore highlight the critical role of auditor competence and the need to empower auditors to effectively assess fraud risk in the Jordanian public sector. The importance of this topic lies in the increasing demands for transparency in public resource management and greater accountability in the use of public funds. Empowering auditors can help identify and combat fraud, which in turn helps stabilize the country's financial system.

However, developing auditor competence faces a number of challenges, including the need for continuous training and adaptation to new audit technologies and methodologies. In particular, the use of advanced digital tools and complex data in audit activities requires auditors not only to have technical knowledge, but also to be critical thinkers and quickly adapt to changes in the regulatory environment.

The study conducted an in-depth analysis of existing approaches to auditing in the Jordanian public sector. This analysis was based on the use of the even-case comparison method, which allowed for the evaluation and comparison of different risk assessment strategies. This method provided a systematic approach to identifying the most effective practices in auditor activities. The research process also included an analysis of fraud cases identified in recent years and an assessment of the

measures taken to prevent and control them. This allowed identifying key areas where control mechanisms needed to be strengthened and the competence of audit personnel increased.

Based on the data collected and the analysis conducted, the study formulated recommendations for improving audit activities in Jordan. These recommendations are aimed at expanding the tools and methods for risk assessment, which should help reduce the opportunities for fraud and improve the overall effectiveness of auditing in the public sector.

Thus, the study highlights not only the current state of auditing in Jordan, but also the importance of further developing the professional capabilities of auditors in the context of ensuring the financial security and stability of the public sector.

6.2. Limitations and prospects for further research

One of the main limitations of this study is its exclusive focus on the Jordanian public sector, which limits the generalizability of the findings to the private sector or other countries with similar economic conditions. This limitation may obscure important differences in risk control and management mechanisms that exist across different sectors or cultural contexts.

Future research in this area includes expanding the analysis to include the private sector and comparing risk management practices between the public and private sectors in Jordan. It would also be useful to examine how similar mechanisms are used in other Middle Eastern countries, which could help identify universal and unique fraud management strategies. This would provide a deeper understanding of how audit practices can be adapted and refined to better manage risk in different contexts.

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