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ORIGINAL ARTICLE

The impact of implementing an internal control system on banking risk management during crises: a case study on banks operating in Palestine

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Abstract
The stability of financial institutions is crucial for economic resilience, particularly in volatile political and financial climates. Internal controls are therefore essential for effective risk management and operational safeguards. However, current literature lacks a nuanced understanding of how specific components of internal control systems contribute to risk minimization, especially during crises. This study investigates the impact of internal control systems (ICS) on risk management in Palestinian banks during crises since 2020. Employing a mixed-methods explanatory sequential design, 160 internal audit and risk management personnel participated via structured questionnaires and semi-structured interviews. The five ICS components—control environment, risk assessment, control activities, information and communication, and monitoring—were analyzed using multiple linear regression. Results indicate that a robust control environment, effective risk assessment, and strong information and communication systems significantly enhance risk management effectiveness during crises. Conversely, control activities and monitoring demonstrated no significant impact, suggesting limitations in their adaptability to rapidly changing crisis conditions. This research uniquely contributes to the literature by focusing on banks operating within politically and economically unstable contexts. The findings highlight the critical role of specific ICS components in strengthening risk management and organizational resilience. The mixed-methods approach provides both quantitative evidence and qualitative contextual understanding, advancing knowledge of corporate governance and risk mitigation in high-risk environments. This study provides a picture of the potential benefits to firms, policymakers and professional bodies from considering internal control system on banking risk management during crises. The findings of such an examination can help them to set up suitable policies and enhance the role and the quality of implementing an internal control system on banking risk management during crises.s

Keywords Internal control system · Control environment · Risk assessment · Control activities · Information and communication · Monitoring · Risk management · Banking sector · Palestinian context

Introduction

The importance of robust internal controls has become increasingly apparent in recent years, especially in the wake of high-profile corporate collapses attributed to fraud, manipulation, and financial misconduct. These failures were often rooted in inadequate internal control systems and, in some cases, complicit auditor practices (McNally 2013). Within the ever-evolving banking and financial landscape, a strong internal control framework is critical for operational stability and asset protection. This foundational element serves as a cornerstone for banks, enabling them to conduct their activities with integrity, fostering compliance and

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driving efficient financial performance (Maaroufi and Hajar 2022; Abualhassan et al. 2024).

The banking sector serves as a cornerstone of the global economy, playing a pivotal role in local development through the financing of diverse economic projects. For instance, total credit facilities reached $11 billion, and banks' total assets amounted to $21.7 billion in the first quarter of 2024 (Association of Banks in Palestine 2024) However, Palestinian banks navigate a complex and volatile landscape, facing significant risks stemming from both domestic and external economic and political shifts. The concentration of economic activity within Palestine, coupled with ongoing political and economic instability, amplifies the potential for negative impacts on financial performance. To mitigate these challenges, Palestinian banks, under the guidance of the Palestinian Monetary Authority (), have established dedicated risk management committees. These committees play a critical role in strengthening financial performance, maintaining capital resilience, and ensuring the long-term sustainability of the banking sector. Furthermore, internal audit departments serve as essential pillars, diligently reviewing and improving the effectiveness of risk management and governance frameworks, thereby enhancing overall banking efficiency and effectiveness (PMA 2022).

This study aims to investigate the impact of a comprehensive internal control system, incorporating its five key components, control environment, risk assessment, control activities, information and communication, and monitoring, on risk management practices within Palestinian banks. The study focuses specifically on the period since the onset of the crises in 2020, seeking to understand how these components have influenced the effectiveness of risk management in navigating the turbulent landscape of the past few years. Furthermore, the study aims to determine the relative significance of each component in shaping risk management practices within these institutions. This study offers valuable insights for boards' bank seeking to enhance the performance of their internal control system, ultimately strengthening risk management effectiveness and mitigating potential financial losses. The study also underscores the importance of banks continually refining their internal control systems to adapt to evolving economic landscapes and effectively manage emerging risks, including those associated with digital transformation. By drawing on best practices and international standards for establishing robust internal control and risk management frameworks, this study provides actionable recommendations for policymakers in Palestine to enhance their effectiveness in addressing economic challenges and fostering a resilient banking sector. Employing a mixed-methods approach, the study provides a unique and insightful perspective on this critical topic. It highlights the crucial role of robust internal control system in bolstering Bank resilience, especially during times of crises.

Addressing the identified study gaps, this study provides a comprehensive analysis of the *combined* impact of the five internal control components on risk management in Palestinian banks during crises. Unlike previous research that examines these components individually, this study investigates their *cumulative* effects in a banking environment that faces complex challenges. This study empirically establishes a crucial link between effective internal audit functions, robust internal control systems, and enhanced risk management, thereby advancing our understanding of these dynamic relationships. This study addressed a significant gap in literature. The findings offer empirical evidence to support a reassessment of the Palestine Monetary Authority's approach to strengthening internal audit effectiveness and internal control system quality, thus enabling a more adaptive and resilient regulatory framework. Furthermore, this study highlights the need for supplementary standards and guidelines to enhance integrity and transparency in the design and implementation of internal control systems, fostering a more stable banking sector. Ultimately, this contributes a robust, evidence-based framework that informs banking practices and policies in Palestine, promotes financial stability, and directly addresses the gaps identified in the literature. This impact extends beyond theoretical advancements.

The paper is organized as follows: we expose the literature review in the first section to present the hypotheses, we devote the second section to the presentation of the methodology, we expose the results in the third section and in the last section, we conclude.

Literature review and hypothesis development

Management of banking risks

The Management of banking risk is a comprehensive framework of procedures and analytical models to control and improve banking risk. It encompasses the identification of risks associated with each banking product and service through risk self-assessment and categorization tools. These tools facilitate the identification of gaps in risk management practices and enable the implementation of corrective actions. Subsequently, the risks were measured according to their magnitude, duration, and likelihood of occurrence. Strategies such as avoiding certain markets or imposing restrictions on specific activities can mitigate potential losses. Ongoing risk monitoring through robust information systems ensures the continuity of control measures, enabling the tracking of changes in risk exposure levels, and

facilitating effective risk management (Lam 2014; BCBS 2006; Ismail 2021; Mohammad et al. 2024).

Internal control system

Internal control is an integral process, undertaken by bank management and staff, encompassing policies and procedures designed to provide reasonable assurance regarding the accuracy of financial and administrative operations, the reliability of financial data, the protection of assets, compliance with regulations, and the attainment of maximum efficiency and effectiveness in task execution (COSO 2013; Arab Society of Certified Accountants 2001; ISA:315). The internal control system is built upon five fundamental pillars: **Control Environment** which establishes the overarching framework within which control activities are conducted. **Risk Assessment** entails identifying and analyzing risks associated with achieving organizational objectives (Yang 2022). **Control Activities** represent a set of policies and procedures such as task segregation, operational controls, and performance reviews that aim to safeguard the operations from potential risks (Rahim et al. 2018; Basalat et al. 2023). **Information and Communication** is the fourth pillar emphasizing the importance of identifying, obtaining, and communicating relevant information on time to individuals to fulfill their responsibilities and make informed decisions. **Monitoring** is the final pillar that involves the ongoing evaluation of the design and operation of control elements. It encompasses periodic assessments of internal control performance quality, conducted by management to ensure that controls achieve their intended purpose. Corrective actions are taken as needed to adapt to evolving circumstances (Amer et al. 2022).

Hypothesis development

This study draws upon three prominent theoretical framework to understand the impact of internal control systems on risk management within the Palestinian banking sector. Agency Theory posits that a well-designed internal control system can effectively mitigate conflicts of interest between shareholders (principal) and Bank management (agent). By strengthening control mechanisms and aligning incentives, internal controls encourage management to prioritize shareholder interests, especially during crisis periods (Jensen and Meckling 1976). Stakeholder Theory emphasizes the importance of considering the interests of all stakeholders within an organization. By adoption robust internal control systems, banks demonstrate a commitment to socially responsible and ethical behavior toward stakeholders, fostering trust and collaboration. This approach cultivates a culture of sustained performance and resilience, even during periods of crisis (Freeman 2010). Signaling Theory highlights the role of internal control systems in transmitting trust signals to investors and stakeholders. A strong internal control system demonstrates a bank's commitment to robust risk management practices and its ability to effectively navigate crises. This transparency reduces the information asymmetry between bank management and external parties, fostering confidence and trust (Nour and Momani 2021).

Control environment

Numerous studies have underscored the pivotal role of the control environment in bolstering the efficacy of control systems and risk management, particularly within the financial sector and the banking industry. For instance, Elmas and Korkmaz (2023) found that a robust control environment contributes to enhanced asset profitability and return on equity in Turkish banks. Similarly, Otoo et al. (2023) posit that the control environment significantly impacts overall banking performance. Furthermore, Tanbour and Nour (2022) demonstrated the control environment's critical role in improving internal controls' effectiveness.

Further research corroborates these findings. Trang (2022) confirmed that an enhanced control environment, in conjunction with control activities and risk assessment, promotes increased efficiency in internal controls. Hazzaa et al. (2022) similarly indicated that the control environment is a key determinant of improved financial performance in companies. Additionally, Tuti (2022) established that a strong control environment, coupled with proactive fraud prevention through risk management, facilitates fraud avoidance and positively influences organizational performance. Yasmin et al. (2021) showed that the control environment enhances financial reporting quality, and Zweilf and Alyan (2021) demonstrated that the components of internal control, as defined by the COSO framework—including the control environment—positively affect operational risk management in Jordan.

Nevertheless, a body of research has identified potential impediments that can undermine the effectiveness of the control of the environment in mitigating risks. For example, Bamidele et al. (2021) revealed that factors such as organizational culture, senior management's commitment, and integration with other aspects of internal control can significantly influence the efficacy of the control environment. Likewise, Al-Thuneibat et al. (2020) concluded that a strong control environment alone is insufficient; its effectiveness hinges on the robust implementation of other control factors, including control activities and supervisory processes.

Moreover, several studies suggest that the control environment can face challenges in weakly regulated environments or in those resistant to change (Johl et al. 2019). In some circumstances, the control environment may fail to adequately manage risks when not supported by robust

controls and the effective execution of internal policies (Smith et al. 2020).

Based on this extensive body of research, the following hypothesis is developed as follows:

H1: Implementing a control environment has a positive effect on risk management in banks operating in Palestine during crises.

Risk assessment

A thorough review of current literature confirms that risk assessment is a critical tool for enhancing risk management practices and overall performance across various industries. As supported by Asuman and Kabanda (2023) and Al-Anzi (2023), risk assessment is a vital component of the internal control mechanism, with its direct impact enabling effective financial management and bolstering the efficacy of controls. Similarly, Maaroufi and Hajar (2022) and Iradukunda and Kamande (2022) observed a positive relationship between financial performance and risk assessment within the banking sector, which translates to increased organizational effectiveness.

Furthermore, Ayedh et al. (2021) and Darwish (2021) demonstrated that risk assessment reduces institutional vulnerabilities and promotes accountability, thereby improving financial reporting quality. Elmas and Korkmaz (2023) also confirmed a positive and strong relationship between risk assessment and return on equity. Additionally, Mwale and Habaazoka (2023) and Hung and Tuan (2019) emphasized the role of risk assessment in strengthening internal controls and effectively enhancing financial risk management. Similarly, Bayyoud and Sayyad (2015) and Dwiyanti et al. (2022) conducted in-depth studies into the impact of risk assessment on fraud prevention, concluding that financial institutions with robust risk assessment frameworks experience increased fraud deterrence, specifically in terms of performance. Rahim et al. (2018) and Vu (2016) further argued that risk assessment enhances the effectiveness of control choices through thorough documentation of associated risks.

Despite this substantial evidence of positive impact, some studies suggest that the effectiveness of risk assessment can be hindered by several factors. These include poor managerial commitment to implementing assessment recommendations and the limited availability of relevant information for analysis (Johl et al. 2019). Furthermore, Al-Thuneibat et al. (2020) noted that the routine nature of risk assessments in many financial institutions can diminish their effectiveness in strengthening risk management practices. Finally, Smith et al. (2020) stressed that the effectiveness of risk assessment is largely contingent on its integration with other components of the internal control system, such as the control environment and control activities; thus, when considered in isolation, risk assessment is unlikely to provide effective risk management. Based on this previous research, the second hypothesis can be formulated as follows:

H2: Implementing risk assessment has a positive effect on risk management in banks operating in Palestine during crises.

Control activities

Control activities are fundamental to supporting institutional systems across various sectors, significantly contributing to the efficacy of internal control systems and risk management, which in turn positively impacts financial and institutional performance. Kadhim et al. (2023) and Yassari and Ayash (2023) highlighted the importance of control activities in enhancing the effectiveness of accounting systems and mitigating risks, ultimately improving financial performance. Similarly, Saber and Sassine (2022) and Wang and Jin (2020) demonstrated a positive relationship between internal control activities and the reduction of financial risks, thereby enhancing the stability of financial institutions.

Furthermore, Tran et al. (2020) emphasized the significance of internal control system components, noting that control activities directly contribute to improving the quality of financial reporting, a point also supported by Saad (2020). Additionally, Chan et al. (2021) and Nashwan (2018) found that control activities positively influence institutional innovation and corporate performance. Muhunyo and Jagongo (2018) and Hidayah and Misdiyono (2019) indicated that the effective implementation of internal control measures plays a crucial role in preventing accounting fraud and ensuring regulatory compliance, particularly within the banking sector. These studies collectively affirm that control activities directly impact risk management by enhancing financial performance and strengthening corporate governance.

Despite the supporting evidence, a body of researchers posits that the effectiveness of control activities is contingent upon several factors, including senior management's commitment to their implementation and the elimination of gaps in their application. According to Johl et al. (2019), some institutions utilize control activities superficially, without effective implementation, ultimately counteracting their intended impact on risk management. Similarly, Al-Thuneibat et al. (2020) found that overreliance on formal controls can impede operational processes and escalate bureaucratization, which subsequently restricts institutional innovation. Moreover, Smith et al. (2020) suggest that the effectiveness of control activities is determined by their integration with the control environment and risk assessment processes, arguing that a fragmented application may fail to enhance risk management performance. Thus, the third hypothesis can be formulated as follows:

H3: Implementing control activities have a positive effect on risk management in banks operating in Palestine during crises.

Information and communication

Prior investigations have established information and communication systems as a vital component in strengthening internal controls and managing risks, particularly within the financial sector. Ghanem and Awad (2023) and Abass et al. (2023) stated that effective information and communication systems facilitate fraud prediction and positively impact institutional performance, consequently enhancing operational efficiency and sustainability. Conversely, Li and Chen (2022) demonstrated that information flow delays can impede controls, thereby diminishing the effectiveness of the internal control system. Furthermore, studies conducted by Elmas and Korkmaz (2023) and Hung and Tuan (2019) revealed that such systems significantly impact profitability and risk management performance.

Although the majority of studies emphasize the beneficial role of information and communication systems in enhancing financial performance, institutional effectiveness, and fraud prevention, a minority of studies present conflicting findings. Otoo et al. (2023) determined that such systems have a limited impact within the banking sector, suggesting that their effectiveness may depend on factors such as information quality, information velocity, and the responsiveness of management to available information. Additionally, researchers such as Rahim et al. (2018) posit that overreliance on computerized information systems could exacerbate cybersecurity vulnerabilities, highlighting the importance of a balanced approach that incorporates both automation and human intervention. Moreover, Smith et al. (2020) emphasized that the efficacy of information systems is largely contingent on the level of training received by personnel and their capacity to interpret and utilize information in decision-making environments. Based on these findings, the fourth hypothesis is as follows:

H4: The implementation of information and communication systems has a positive effect on risk management in banks operating in Palestine during crises.

Monitoring

The monitoring function within an internal control system is a critical mechanism for assessing the design and operational effectiveness of control components. It ensures the continued efficacy of these controls and facilitates their enhancement when necessary (Hayali et al. 2013). Kalvel and Irumba (2023) emphasized its significant role in controlling public funds, and Liu and Chen (2021) found that it aids in mitigating risks. Furthermore, Ayedh et al. (2021) demonstrated a positive relationship between monitoring and accountability in accounting processes. Elmas and Korkmaz (2023) also revealed a positive impact of monitoring on asset profitability and return on equity, and Pham (2021) emphasized its role in minimizing credit risk. Moreover, a study conducted by Tanbour et al. (2024) found a significant positive impact of monitoring on the generation of tax revenues.

In the banking sector, numerous studies have posited that monitoring enhances the effective performance of internal control systems and reduces the incidence of fraud and financial risks (Bayyoud and Sayyad 2015; Dwiyanti et al. 2022; Mwale and Habaazoka 2023). Rahim et al. (2018) found that senior management's monitoring activities aid in risk identification and decision-making, and Phuoc and Ngoc (2020) demonstrated its direct impact on efficiency within credit systems. Additionally, studies by Thach and Phuong (2017), and Hanoon (2021) have shown a positive impact of monitoring risk mitigation within the tourism and banking industries.

While many studies suggest that monitoring effectively mitigates risks, some research indicates potential impediments that can compromise its effectiveness. For instance, Johenson et al. (2021) argued that excessive monitoring can limit operational adaptability and increase administrative expenses. Brown et al. (2019) posited that the effectiveness of monitoring is highly dependent on the independence of internal control departments and access to reliable, up-to-date information. Furthermore, some studies highlight the complexity of employing monitoring tools during times of crisis due to unpredictable external factors and their impact on audits and supervision (Kassem et al. 2020). Based on these findings, the fifth hypothesis is as follows:

H5: The implementation of monitoring has a positive effect on risk management in banks operating in Palestine during crises.

This study addresses a significant gap in the existing literature on internal control systems and risk management practices within banks, particularly in the context of prolonged crises and conflict situations. While previous studies have explored these topics broadly, there is a lack of focused attention on the specific influence of each component of the internal control system – including the control environment, risk assessment, control activities, information and communication, and monitoring – on risk management practices in Palestinian banks, especially during periods of protracted conflict and instability. Most existing studies tend to address internal control systems or risk management in a general sense, failing to delve into the unique and differential impact of each control component in such challenging contexts. This gap presents a crucial opportunity to examine the internal control systems of Palestinian banks operating under conditions characterized by continuous crises since 2020. This study will meticulously explore the various

roles and contributions of each internal control component in enhancing the effectiveness of risk management during times of uncertainty and financial instability. By focusing on the specific impact of each component, the research seeks to provide more nuanced insights into how banks can optimize their internal control systems to ensure robust risk management during periods of crisis, particularly in regions facing prolonged conflict. This paper aims to fill the existing gap in the literature by providing a detailed examination of how each component of internal control contributes specifically to shaping risk management practices among Palestinian banks during periods of crisis.

Methods section

Research design and sampling

This study employed a mixed-methods approach, integrating both quantitative and qualitative research methodologies and data, to provide a comprehensive and nuanced understanding of the impact of internal control systems on risk management in Palestinian banks during periods of crisis. This approach, as described by Creswell and Creswell (2018), combines the strengths of both quantitative and qualitative methodologies, offering a more holistic and robust understanding of the research problem (Jalabi 2012). The integration of quantitative and qualitative data provided complementary insights. Quantitative data offered precise statistical insights into the relationships between variables, while qualitative data provided rich descriptions, interpretations, and contextual understanding of the phenomena under investigation. Combining these methodologies helped to mitigate potential biases that might arise from using only one approach, leading to a more balanced and comprehensive understanding of the research problem.

The study's population comprised all members of audit committees, risk management committees, and middle management employees in banks operating in Palestine. According to the Palestinian Banking Association data as of May 31, 2024, this population totaled 1,348 individuals. The researchers employed a non-probability, purposive sampling method to select a total of 160 participants for the study. This sample consisted of 33 members of audit and risk management committees and 127 employees from internal audit and risk management departments in Palestinian banks. The purposive sampling approach was chosen because these individuals possess a high level of knowledge and understanding of banking operations in Palestine, making them ideal participants for the study (Nour and Tanbour 2023).

The study sample comprised individuals with direct involvement in internal control and risk management, specifically those employed in internal audit and risk management departments and members of oversight committees within Palestinian banks. Participants were selected based on professional competence, practical experience (a minimum of five years in relevant supervisory or executive roles), and academic specialization, with preference given to those holding recognized certifications such as CIA or CFRM. To enhance the generalizability of the findings, the sample included representatives from various bank types (commercial, Islamic, and foreign), as well as diverse geographic and organizational distributions. Demographic analysis was conducted to confirm the sample's representativeness of the broader population, thereby minimizing potential bias. Consequently, purposive sampling provided an effective framework for selecting participants most capable of providing accurate and relevant data, thereby enhancing the research's quality, the results' credibility, and them generalizability within similar financial institutions.

To further enrich the study's findings and enhance credibility, the researchers conducted qualitative interviews with a purposive sample of 25 participants. This qualitative component aimed to provide a deeper understanding of the quantitative results, offering valuable insights and contextualization. The selection of 25 participants aligns with the recommended range of 20–30 participants for qualitative research (Zadem 2021). Saturation was achieved at participant number 17, indicating that no new information or insights were being gathered from subsequent interviews. This ensured that the researchers collected adequate data to fully explore the research questions and achieve the study's objectives.

Research instrument (questionnaire)

The questionnaire, designed to gather data for the study, was developed through a review of relevant literature and consisted of two main sections: The first part deals with demographic factors for sample participants, while the second part reflects dimensions of the independent variable- internal control system-and the dependent variable-risk management in banks. This tool consists of 65 items and is divided into the following: 43 items to assess the application of the five elements of internal control system and 22 items to assess the risks in banks during crises. A five-point Likert scale was used in the questionnaire, ranging from 1 (strongly disagree) to 5 (strongly agree), allowing more flexibility for participants in selecting their responses.

Table 1 presents a summary of the previous studies used to develop the questionnaire. It details the variables, their origins, and the number of items used for their measurement. This table includes seminal studies and established paradigms (e.g., COSO 2013 and COSO 2017), as well as

Table 1 Definitions and measurements of study variables Source: Author's work

Variables	Sources	Number of items
Internal control system	COSO (2013)	43
Control environment	Elmas and Korkmaz (2023), Tanbour and Nour (2022)	8
Risk assessment	Asuman and Kabanda (2023), Al-Anzi (2023)	11
Control activities	Kadhim et al. (2023), Tanbour et al. (2020)	9
Information and communication	Ghanem and Awad (2023), Al-Rafou and Al-Tarawneh (2021)	7
Monitoring	Liu and Chen (2021), Mwale and Habaazoka (2023)	7
Risk management during crises	Tanbour and Nour (2024); COSO (2017)	22

contemporary research, demonstrating the methodological comprehensiveness and rigor of the questionnaire's design.

Data collection process

The study relied on both primary and secondary data sources to comprehensively address the research questions. Researchers gathered information from a variety of sources, including books, academic journals, specialized reports, and online databases, to provide a solid foundation of existing knowledge on Internal Control System, risk management, and the Palestinian banking sector. Primary data were collected through a structured questionnaire designed to measure the study's variables. The questionnaire employed a five-point Likert scale to gauge participants' perceptions and attitudes toward Internal Control System And its influence on risk management.

Data analysis techniques

Common method bias

Common method bias (CMB) is a key problem that researchers face when studying with primary survey data. CMB can arise through several contributing factors. Most common is response bias, in which respondents tend to use similar rating values for all survey items (Jordan and Troth 2020). Variance inflation factors (VIFs) in a model have a role in checking for multicollinearity, but they can also act as an indicator of common method bias (Kock 2015). Where VIF values for individual survey items in a model fall at or below 3.3, the model is considered to have a low risk of common method bias. As shown in Table 2, all VIF values fall below 3.3, suggesting that the information derived through the primary survey is likely free of complications in terms of common bias.

Validity and reliability tests

To ensure the quality and reliability of the research instrument, a rigorous process of validation was undertaken. The questionnaire was reviewed by a panel of experts, including university faculty members with expertise in related fields and professionals from the banking sector. These experts provided feedback on the questionnaire's clarity, sequence, and representation of the required variables. Their comments were incorporated into revisions to enhance the instrument's accuracy and relevance. The internal consistency of the questionnaire was assessed using Cronbach's alpha, a widely accepted measure of reliability. As shown in Table 3, the Cronbach's alpha values for all study variables exceeded the minimum acceptable threshold of 0.70 (Sekaran and Bougie 2016), indicating high internal consistency and reliability (Tanbour and Nour 2022).

Construct validity

To further ensure the validity of the research instrument, construct validity was assessed through a process of item analysis. This involved calculating Pearson's correlation coefficients to determine the relationship between each item in the scale and the overall scale score. Items exhibiting a correlation coefficient below 0.25 or those with a direction opposite to the overall scale score were removed from the questionnaire. This process eliminated items that did not align with the intended construct, enhancing the instrument's construct validity. The revised questionnaire, after removing irrelevant items, demonstrated strong construct validity, indicating that the remaining items effectively represent the constructs they are designed to measure. Table 4 provides a detailed presentation of the item analysis results, illustrating the correlation coefficients and the rationale for retaining or removing specific items from the questionnaire.

Table 4 demonstrates that all items within the study instrument exhibit correlation coefficients greater than

Table 2 Variance inflation factors test: Source: Researcher's output using SPSS, 27

Independent variable: internal control system					
Control environment	Item	1	2	3	4
	VIF	1.23	1.19	1.16	1.24
	Item	5	6	7	8
	VIF	1.20	1.26	1.25	1.36
Risk assessment	Item	9	10	11	12
	VIF	1.10	1.09	1.24	1.14
	Item	13	14	15	16
	VIF	1.24	1.18	1.36	1.12
	Item	17	18	19	
	VIF	1.25	1.23	1.16	
Control activities	Item	20	21	22	23
	VIF	1.18	1.13	1.20	1.24
	Item	24	25	26	27
	VIF	1.38	1.25	1.26	1.24
	Item	28			
	VIF	1.19			
Information and communication	Item	29	30	31	32
	VIF	1.13	1.14	1.30	1.19
	Item	33	34	35	36
	VIF	1.17	1.27	1.16	1.20
Monitoring	Item	37	38	39	40
	VIF	1.25	1.17	1.17	1.14
	Item	41	42	43	
	VIF	1.09	1.04	1.20	
Dependent variable: bank risk management during crises					
	Item	44	45	46	47
	VIF	1.14	1.37	1.23	1.33
	Item	48	49	50	51
	VIF	1.30	1.26	1.47	1.47
	Item	52	53	54	55
	VIF	1.38	1.57	1.51	1.43
	Item	56	57	58	59
	VIF	1.59	1.36	1.19	1.47
	Item	60	61	62	63
	VIF	1.48	1.36	1.42	1.36
	Item	64	65		
	VIF	1.35	1.24		

Table 3 Cronbach's alpha values Source: Researcher's output using SPSS, 27

Type of variables	Independent variables					Dependent variable	Overall indicator
	Control environment	Risk assessment	Control activities	Information and communication	Monitoring	risk Management during crises	
Cronbach's alpha	92.5	94.2	92.2	89.3	91.4	96	98.1
Number of items	8	11	9	8	7	22	65

Table 4 Correlation of scale items with their constructs Source: Researcher's output using SPSS, 27

Independent variable: internal control system					
Control environment	Item	1	2	3	4
	Correlation	0.586**	0.567**	0.536**	0.572**
	Item	5	6	7	8
	Correlation	0.526**	0.611**	0.579**	0.632**
Risk assessment	Item	9	10	11	12
	Correlation	0.382**	0.396**	0.512**	0.475**
	Item	13	14	15	16
	Correlation	0.555**	0.522**	0.577**	0.396**
	Item	17	18	19	
	Correlation	0.507**	0.511**	0.445**	
Control activities	Item	20	21	22	23
	Correlation	0.511**	0.347**	0.503**	0.562**
	Item	24	25	26	27
	Correlation	0.651**	0.524**	0.604**	0.557**
	Item	28			
	Correlation	0.483**			
Information and communication	Item	29	30	31	32
	Correlation	0.460**	0.506**	0.584**	0.550**
	Item	33	34	35	36
	Correlation	0.543**	0.607**	0.556**	0.535**
Monitoring	Item	37	38	39	40
	Correlation	0.621**	0.586**	0.557**	0.505**
	Item	41	42	43	
	Correlation	0.491**	0.445**	0.573**	
Dependent variable: bank risk management during crises					
	Item	44	45	46	47
	Correlation	0.377**	0.466**	0.368**	0.448**
	Item	48	49	50	51
	Correlation	0.446**	0.443**	0.49**	0.541**
	Item	52	53	54	55
	Correlation	0.535**	0.567**	0.518**	0.514**
	Item	56	57	58	59
	Correlation	0.607**	0.495**	0.355**	0.393**
	Item	60	61	62	63
	Correlation	0.499**	0.502**	0.502**	0.491**
	Item	64	65		
	Correlation	0.468**	0.386**		

indicates significance at the 0.05 level (2-tailed), when applicable

**indicates that the Pearson correlation is significant at the 0.01 level (2-tailed)

0.25 and have a positive direction. This finding confirms the construct validity of the instrument, indicating that the items effectively measure the constructs they are intended to assess. The positive correlation coefficients suggest that the items are consistent with the overall scale score, confirming that they are measuring the same underlying construct. The fact that all items exhibit correlations above the acceptable threshold of 0.25 further strengthens the construct validity of the instrument, ensuring that it accurately captures the intended dimensions of the study variables.

Normality distribution test

To ensure the appropriateness of parametric statistical tests, the normality of the data distribution was assessed using the

Table 5 Data normality based on the (K-S) Test Source: Researcher's output using SPSS, 27

Type of variables	Independent variables					Dependent variable
	Control environment	Risk assessment	Control activities	Information and communication	Monitoring	Risk management during crises
K-S	0.851	1.009	0.739	0.724	0.573	1.131
Sig	0.463	0.260	0.646	0.671	0.898	0.155

Table 6 Multicollinearity test results Source: Researcher's output using SPSS, 27

Model	Tolerance	VIF
Control environment	0.556	1.799
Risk assessment	0.524	1.91
Control activities	0.483	2.07
Information and communication	0.531	1.884
Monitoring	0.544	1.837

Kolmogorov–Smirnov (K-S) test. The K-S test is a widely used method for determining whether a sample distribution significantly deviates from a normal distribution (Hair et al. 2018). Table 5 presents the results of the K-S test. As the significance value (Sig.) for all study variables is above 0.05, this indicates that the data distribution for each variable does not significantly deviate from a normal distribution. This finding supports the use of parametric statistical tests for analyzing the relationships between the study variables.

Multicollinearity test

To assess the presence of multicollinearity, a common issue in multiple regression analysis, the researchers examined the tolerance values and Variance Inflation Factor (VIF) for the independent variables. Table 6 shows that all tolerance values for the independent variables are less than 1 and greater than 0.2, while the VIF values are less than 5. These findings indicate that multicollinearity is not a significant concern in this study. As per Hair et al. (2018), tolerance values below 1 and above 0.2, along with VIF values below 5, suggest that the independent variables are not highly correlated with each other, allowing for a reliable multiple linear regression analysis. This ensures that the results obtained from the regression analysis are accurate and not influenced by the presence of multicollinearity.

To further confirm the absence of multicollinearity among the independent variables, Pearson's correlation coefficients were calculated. This analysis aimed to assess the level of linear association between the four dimensions of the **Internal Control System** (Control Environment, Risk Assessment, Control Activities, Information and Communication Monitoring).

Table 7 presents the results of the Pearson's correlation analysis. The correlation coefficients between the dimensions of internal control system are all below the threshold for high multicollinearity, providing additional confirmation that the independent variables are not highly correlated. Table 6 shows that the highest correlation coefficient observed among the independent variables is 0.604. This value is below the commonly accepted threshold of 0.80 for indicating high multicollinearity (Gujarati et al. 2017).

Qualitative data

The qualitative data gathered through interviews were analyzed using a thematic analysis approach. A deductive analytical pattern was applied, whereby the researchers focused on specific concepts guided by the research questions and objectives. This approach allowed for the identification of multiple themes and a deeper interpretation of the subject

Table 7 Pearson correlation matrix for independent variables Source: Researcher's output using SPSS, 27

	Control environment	Risk assessment	Control activities	Information and communication	Monitoring
Control environment	1				
Risk assessment	0.568**	1			
Control activities	0.573**	0.574**	1		
Information and communication	0.536**	0.515**	0.604**	1	
Monitoring	0.478**	0.572**	0.569**	0.559**	1

indicates significance at the 0.05 level (2-tailed), when applicable

**Pearson correlation significant at 0.01

matter. Thematic analysis involves organizing and categorizing qualitative data into meaningful groups or themes. This process facilitates the understanding and interpretation of the data, revealing patterns, insights, and key findings. The researchers manually analyzed the qualitative data without using computerized programs (Alsaleh 2017).

We followed a series of steps, drawing inspiration from the works of Braun and Clarke (2006), Alsaleh (2017), Jones et al. (2017), and Saunders et al. (2019): First, we personally conducted the interviews, transcribed the recordings, and repeatedly listened to and reviewed the transcripts, immersing themselves in the data to gain a deep understanding of the participants' perspectives. Second, we coded the data based on a pre-existing coding framework derived from relevant theories, previous studies, and the researchers' analytical insights. A total of six codes were developed to represent the key themes emerging from the data. We identified Core themes directly from the research questions and objectives, ensuring that the analysis addressed the study's key areas of interest. We developed then detailed specifications for each theme, outlining its specific characteristics and demonstrating how it related to both the theoretical framework and the research questions. We reviewed the identified themes carefully to confirm their significance and ensure that they reflected meaningful patterns relevant to the study questions, objectives, and theoretical framework. Finally, we presented The findings of the thematic analysis in a comprehensive report, including detailed descriptions of the identified themes and their sub-themes: Discussion of the themes in light of the theoretical framework and existing literature and an interpretation of the quantitative results in conjunction with the qualitative data, providing a comprehensive and integrated understanding of the research findings.

Empirical results

Descriptive analysis

Table 8 presents the frequency and the percentage distribution of demographic characteristics collected through the first part of the questionnaire. The table provides a summary of the respondents' answers related to personal data, allowing for a better understanding of the sample's composition and characteristics.

Table 8 reveals that internal auditors constitute the largest participant group (36.5%, 58 individuals), followed by risk management employees (28.5%, 45 individuals). This emphasizes the study's focus on professionals directly engaged in internal audit and risk management within the Palestinian banking sector. The majority of participants (64.4%, 103 individuals) possess a Bachelor's degree, while 35% (56 individuals) hold a Master's degree or higher, signifying a high level of educational attainment. Additionally, 44.4% (71 individuals) have over 15 years of experience in the banking sector, reflecting substantial practical knowledge. Another 38.8% (62 individuals) possess 5 to 15 years of experience, contributing to the diversity of expertise within the sample. Furthermore, 56.9% (91 individuals) hold professional certifications, indicating a commitment to professional development. However, 43.1% (69 individuals) lack specialized certifications, highlighting opportunities for further professional growth within the sector. The results of the independent variable items and the dependent variable, shown in Appendix 1, confirm these findings.

Quantitative data analysis

Descriptive statistics

To delve deeper into the study sample's perceptions regarding the study variables and their dimensions, the researchers

Table 8 Description of the sample characteristics Source: Researcher's output using SPSS, 27

Variable	Categories	Frequency	Percentage	Variable	Categories	Frequency	Percentage
Job Title	Risk Committee Member	15	9	Academic Qualification	Master's and above	56	35
	Audit Committee Member	18	11		Bachelor's	103	64.4
	Department Manager	24	15		Diploma	1	0.6
	Internal Auditor	58	36.5				
	Risk management employee	45	28.5				
	Total	160	100		Total	160	100
Banking experience (Years)	Less than 5 Years	27	16.9	Professional certifications	Available	91	56.9
	5–15 years	62	38.8		Not available	69	43.10
	More than 15 Years	71	44.4				
	Total	160	100		Total	160	100

Table 9 Variables' description Source: Researcher's output using SPSS, 27

Type of Variable	Variable	Mean	Standard deviation	Impact degree	*t* test value	Significance value (sig)	Rank
Independent	Control environment	4.15	0.557	High	26.168	0.00	2
	Risk assessment	4.17	0.515	High	28.827	0.00	1
	Control activities	4.04	0.588	High	22.383	0.00	5
	Information and communication	4.07	0.538	High	25.118	0.00	4
	Monitoring	4.13	0.535	High	26.667	0.00	3
	application of an internal control system	4.11	0.498	High	28.327	0.00	
Dependent	Risk management during crises	4.12	0.535	High	96.177	0.00	-

calculated means, standard deviations, ranks, and impact degrees. The degree of impact was determined according to the following formula: Length of Category = (Upper Limit of the Alternative—Lower Limit of the Alternative) /Number of Levels. Thus, {5–1}/ {5} = 0.80. If the mean falls between 4.2 and 5, it is considered within the very high level of impact; if it ranges between 3.4 and less than 4.2, it falls within the high level; if it is between 2.6 and less than 3.4, it is within the medium level; if it ranges between 1.8 and less than 2.6, it is within the low level; and if it is less than 1.8, it is considered within the very low level of impact (Tanbour et al. 2024).

The results presented in Table 9 indicate a strong positive impact of internal control system implementation on risk management during crises within Palestinian banks. All five components of the internal control system—control environment, risk assessment, control activities, information and communication, and monitoring—received a "high" impact rating, suggesting that participants in the study generally believe these elements significantly contribute to effective banking risk management during crises.

Risk assessment emerged as the most impactful component, achieving the highest mean score of 4.17 (standard deviation: 0.515), indicating a strong consensus among respondents on its importance. This was closely followed by the control environment, with a mean score of 4.15 (standard deviation: 0.557), emphasizing the significance of a robust control environment in risk management. Monitoring ranked third with a mean of 4.13 (standard deviation: 0.535), followed by information and communication with a mean of 4.07 (standard deviation: 0.538). Control activities received the lowest mean score of 4.04 (standard deviation: 0.588). The results in Table 8 indicate a high level of agreement among participants regarding the implementation of internal control systems within Palestinian banks and their impact on risk management during crises. The independent variable, "implementation of the internal control system," achieved a mean score of 4.11 (standard deviation: 0.498), demonstrating a high degree of consensus among respondents. Similarly, the dependent variable, "efficiency of banking risk management during crises," achieved a mean score of 4.12 (standard deviation: 0.535), reflecting a strong level of agreement on the effectiveness of risk management practices. The relatively small standard deviations for both variables indicate a high degree of consistency in the responses of the study sample, suggesting that the responses were not widely scattered around the items in the study tool.

Table 10 The impact of implementing an internal control system on banking risk management during crises Source: Researcher's output using SPSS, 27

Dependent Variable	Correlation coefficient (R)	Coefficient of determination (R^2)	Adjusted R^2	F value	Sig
Bank risk management during crises	0.678	0.460	0.442	26.224	0.000
Model	Unstandardized Coefficients		Standardized coefficients	T value	P value (Sig)
	B	Standard error			
Constant	1.187	0.283		4.199	0.00
Control environment	0.201	0.069	0.232	2.916	0.004
Risk assessment	0.289	0.083	0.283	3.461	0.001
Control activities	0.098	0.076	0.110	1.290	0.199
Information and communication	0.271	0.071	0.311	3.821	0.000
monitoring	−0.135	0.072	−0.151	−1.883	0.620

The results of the independent variable items and the dependent variable shown in Appendix 1 confirm these findings.

Empirical results

The multiple linear regression analysis, as presented in Table 10, reveals a statistically significant positive relationship between the implementation of internal control systems and the effectiveness of bank risk management during crises within the Palestinian banking sector. The F-statistic of 26.224, with a p value of 0.000, indicates that the model as a whole is statistically significant, meaning that the internal control system, with its various dimensions, has a significant impact on risk management. The coefficient of determination (R-squared) of 0.460 suggests that the internal control system explains approximately 46% of the variation in risk management practices within Palestinian banks during crises. This indicates a substantial contribution of internal control to effective risk management, although other factors not included in the model account for the remaining 54% of the variation. The correlation coefficient (R) of 0.678 further supports this finding, demonstrating a moderate to strong positive relationship between the implementation of internal control systems and the efficiency of bank risk management during crises.

The partial analysis of the internal control system dimensions, as shown in Table 10, reveals that "information and communication" has the strongest impact on bank risk management during crises. The beta coefficient for this dimension is 0.311, statistically significant at the 0.05 level (t value = 3.821, p value = 0.001), indicating a strong positive relationship. This suggests that effective communication and information sharing within banks play a crucial role in mitigating risks during crises. The second most influential dimension is "risk assessment," with a beta coefficient of 0.283, also statistically significant at the 0.05 level (t value = 3.461, p value = 0.001). This highlights the importance of proactive identification and evaluation of potential risks in driving effective risk management during crises. The "control environment" follows closely, with a beta coefficient of 0.232, also statistically significant (t value = 2.916, p value = 0.004), emphasizing the significance of a strong ethical and control-conscious culture in mitigating risks. Conversely, the "control activities" and "monitoring" dimensions did not demonstrate a statistically significant impact on risk management during crises. The calculated t-values for these dimensions were 1.290 (p value = 0.199) and − 1.883 (p value = 0.620), respectively, indicating that they do not significantly contribute to mitigating risks during these periods.

Based on the statistical analysis, we accept hypotheses one, two, and four, as there is statistically significant evidence ($p < 0.05$) to support the positive impact of the "control environment," "risk assessment," and "information and communication" components of internal control systems on bank risk management during crises. However, we reject hypotheses three and five due to the lack of statistically significant evidence supporting a positive impact of "control activities" and "monitoring" on risk management during these periods.

Qualitative analysis

This section delves into the qualitative findings derived from in-depth interviews with key stakeholders within the Palestinian banking sector. Employing Braun and Clarke's (2006) thematic analysis framework, a deductive approach was utilized to identify and analyze key themes within the interview transcripts. This systematic exploration of qualitative data provides richer insights into the impact of internal control systems on bank risk management during crises, complementing the quantitative findings and offering a more nuanced understanding of the complex interplay between these factors.

The Impact of the internal control system on risk management in banks operating in Palestine

The research question guiding this qualitative analysis was: How does the internal control system affect risk management in banks operating in Palestine during crises ?

Interview respondents unanimously agreed (100%) that a well-structured and effectively implemented internal control system is crucial for enhancing bank risk management, particularly during crises. This system serves to mitigate risks by reducing operational vulnerabilities, enabling early detection of potential threats, facilitating compliance with laws and regulations to lessen the risk of legal penalties, and supporting the achievement of key organizational objectives such as asset protection and operational efficiency. Furthermore, the internal control system provides a framework for identifying, classifying, and effectively managing various types of risks, thus minimizing financial losses. Strengthening internal control systems was widely recognized as a primary risk management objective. Participants emphasized that a robust system directly reduces the overall level of risk, enabling the risk management function to transition from a reactive, error-correction role to a more proactive, advisory position focused on developing and implementing preventative risk mitigation strategies.

In this context, M1 stated: "The internal control system is part of bank risk management. If the system is designed and suitable for the bank, and applied correctly by the staff, it will lead to a reduction in the risks faced by the bank, and therefore it will have a positive impact on risk management

if built in accordance with the bank's objectives and policies." M2 added: "The internal control system reduces the occurrence of risks through the applied control procedures and mechanisms." M3 emphasized that "the internal control system contributes to mitigating operational risks in the bank." M5 pointed out: "The internal control system is part of risk management in the bank, including procedures and tools for managing risks." M6 commented: "The internal control system affects the quality of banking operations, improves the banking control environment, and helps the bank predict potential risks. It serves as an early warning system for risks the bank may face." M7 stated: "Proper implementation of the elements of the internal control system leads to reducing risks to an acceptable level, and it is the foundation of risk management operations in the bank".

M8 indicated: "A strong internal control system leads to the early detection of potential risks, allowing management to take appropriate preventive actions before problems worsen. It enhances compliance with laws and regulations, reducing the risk of penalties and fines. It also contributes to identifying and classifying different types of risks, which facilitates their effective management and helps reduce financial losses." M19 added: "One of the main goals of risk management is to strengthen internal control systems. The stronger the system, the lower the level of risks. The system must be comprehensive, fit the size and operation of the bank, and be developed and institutionalized to have strong risk management." M18 noted: "The internal control system is part of bank risk management. The stronger the system, the more it helps manage risks. If designed and implemented correctly, it will positively affect risk management".

M10 explained: "The board of directors is responsible for reducing risks and the harm resulting from them. The most important tool for reducing harm is the internal control system. The main reason for the existence of the system is to achieve the bank's objectives, reduce various risks, protect the bank's assets, and ensure efficient and effective operations." M11 affirmed: "The internal control system is part of the bank's senior management, and it must achieve the board's objectives regarding risk management policies." M12 clarified: "The internal control system provides a margin for risk management to implement larger developmental actions. When the systems are sound, the role of risk management becomes more about guidance and advice than correcting errors or monitoring issues".

M9 commented: "The internal control system protects the bank from risks and signals to employees the need for compliance, or there will be severe consequences such as dismissal. Moreover, the presence of the system itself prevents risks and must be designed to fit the bank's environment. There must also be monitoring of the internal control system to ensure its effectiveness in reducing risks to the acceptable levels set by the board of directors." M13 explained: "The need for internal control systems was defined before the need for risk management. The presence of an internal control system reduces the risk of erroneous financial data due to fraud or human error, which enhances the confidence of shareholders, investors, and the bank's reputation in the market. Effective internal control systems also protect the bank's assets from theft, fraud, or misuse, which could lead to financial losses. It supports proper corporate governance, as it facilitates the transparent and robust reporting system, which in turn strengthens governance within the bank. This all contributes to enhancing stakeholder trust in the bank, ultimately benefiting the national economy".

M14 stressed: "The internal control system serves as the watchdog for risk management and has an impact, as it is the foundation upon which risk management is built. Without it, risks faced by banks cannot be reduced." M15 noted: "Having clear tasks and granting authority, along with dual oversight on operations, and having procedures and internal audit management, positively impacts risk management and prevents risks that the bank might face." M16 added: "If the policies and procedures are well formulated and applied correctly, it will automatically reflect positively on the bank, especially in terms of the bank's ability to handle risks and thus overcome any potential crisis".

Internal control systems play a pivotal role in bank risk management by reducing operational risks and providing early warning for potential risks, enabling management to take the necessary preventive actions. These systems also enhance compliance with laws and regulations and help achieve the bank's goals, such as protecting assets and reducing financial losses.

The most influential elements of the internal control system on risk management in banks operating in Palestine during crises

The researcher posed the following question: What are the most influential elements of the internal control system on risk management in banks operating in Palestine during crises?

The interview results revealed that 70% of the participants consider the control environment to have a significant impact on risk management in banks operating in Palestine during crises. Meanwhile, 20% of the participants believe that risk assessment plays an important role in risk management during crises, while 10% of the participants indicate that monitoring has a notable effect on risk management in banks during crises.

In this context, M1 stated, "A comprehensive control of environment significantly contributes to identifying and managing potential risks, emphasizing the importance of clear and specific policies and procedures." M2 emphasized, "A strong control environment is fundamental in building

trust and transparency, which helps in managing risks more effectively." M3 noted, "An organized control environment assists in the early detection of risks and handling them efficiently." M4 stressed, "Ongoing risk assessment is vital to avoid financial crises and minimize their impact on the bank." M5 highlighted, "The importance of continuous and accurate monitoring as part of the internal control system to enhance the bank's capacity to manage risks." M6 pointed out, "The control environment plays a central role in determining the bank's preparedness to face financial crises." M7 noted, "Accurate risk assessment helps in making informed decisions that reduce the impact of crises on the bank." M8 asserted, "Monitoring should be an integral part of the internal control system to ensure a quick and effective response to financial crises."

A comprehensive and strong control environment plays a crucial role in managing banking risks through clear policies and procedures that help in identifying and controlling risks, thus enhancing trust and transparency in banking operations. This environment contributes to the early detection and continuous assessment of risks, allowing the bank to avoid financial crises and reduce their impact. It also ensures that the internal control system is a fundamental component in maintaining the stability and sustainability of banking operations.

Discussion

This study combined both quantitative and qualitative data to assess the impact of implementing an internal control system on risk management in banks during crises. The quantitative data revealed a clear influence of control environment elements on risk management in banks, although it did not shed light on the underlying reasons for this effect. To delve deeper into this phenomenon, qualitative interviews were conducted with a purposive sample. The findings demonstrated that the Control Environment emerged as a fundamental component of risk management in Palestinian Banks. Ethical values and integrity emerged as crucial elements that influence the design and effectiveness of the internal control system. Furthermore, senior management plays a pivotal role as a model for integrity, reinforcing risk management practices. The clear delineation of authorities and responsibilities enhances the effectiveness of the controls and contributes to risk reduction, particularly during crises. Additionally, recruitment policies and continuous employee training are essential elements within the control environment. Having competent and trustworthy staff reduces the need for stringent control measures, which, in turn, mitigates risks.

The control environment serves as the foundation for all other components of the internal control system, as it establishes employee awareness and sets the operating standards within the bank, thereby enhancing risk management. Finally, the support of the control environment by senior management strengthens stakeholder commitment to implementing the designed controls, which has a profound impact on risk management in Palestinian banks. This finding aligns with the results of previous studies by Tanbour and Nour (2022), Trang (2022), Tuti et al. (2022), Elmas and Korkmaz (2023), Otoo et al. (2023), Mwale and Habaazoka (2023), Zuweilf and Alyan (2021), Phuoc and Ngoc (2020), and Dwiyanti et al. (2022).

The study found a positive impact of risk assessment on risk management in banks during crises. Qualitative interviews revealed that risk assessment is crucial for building resilience and enhancing banks' capacity to withstand financial shocks and maintain stability. Participants highlighted various benefits of risk assessment, a key one being the ability to identify potential issues early, enabling timely intervention and preventing impulsive decisions that could lead to significant losses.

By conducting risk assessments, banks can develop effective strategies to mitigate the negative impact of financial crises. This includes identifying operational loopholes and implementing precautionary measures to avoid losses. Risk assessment also fosters customer and investor confidence in the bank's ability to manage risks efficiently, enhancing its market reputation. Customers feel reassured knowing that the bank adheres to rigorous risk assessment guidelines. Moreover, risk assessment facilitates the development of clear contingency plans, enabling banks to respond swiftly to unforeseen crises. Risk assessment is a vital process for banking operations as it helps senior management understand the probability of events that could hinder the bank's objectives. This allows for the implementation of appropriate and effective controls to reduce the potential impact of such events, strengthening the bank's ability to achieve its goals efficiently. This finding is consistent with previous research by Asuman and Kabanda (2023), Al-Anzi (2023), Maaroufi and Hajar (2022), Hoai (2022), Pinheiro et al. (2019), Mwale and Habaazoka (2023), Otoo et al. (2023), Rahim et al. (2018), Dwiyanti et al. (2022), Hanoon (2021), and Akwaa and Moreno (2017).

The study found no statistically significant effect of the control activities component on risk management in Palestinian banks during crises. However, interview responses revealed a more nuanced perspective. While 60% of respondents acknowledged the importance of control activities in managing risks and reducing them to acceptable levels, they emphasized the greater relevance of other factors during crises, such as the control environment, top management guidance on risk reduction policies, and the bank's overall culture. A further 20% suggested that control activities can mitigate the consequences of crises in certain situations, but not in the face of large-scale, unforeseen events like war. This group believed that such crises introduce new and

unexpected risks that banks may struggle to absorb. Another 20% of respondents felt that existing policies and procedures are inadequate for dealing with major crises, as they are primarily designed for managing routine risks. These respondents argued that large-scale crises necessitate more agile and flexible approaches.

On the other hand, 12% of respondents asserted that control activities have a direct and significant impact on risk management during crises. They emphasized the need for extraordinary measures that go beyond standard operating procedures to manage risks more effectively. These respondents viewed control activities as essential for ensuring business continuity and mitigating the adverse effects of crises.

This finding contradicts the conclusions of Kadhim et al. (2023), Qabaila and Abbas (2023), Saber and Sassine (2022), Sumito et al. (2021), Dwiyanti et al. (2022), Wang and Jin (2020), and Mwale and Habaazoka (2023). This discrepancy highlights the need for further research to explore the complex interplay of control activities and risk management during crises in diverse contexts.

The study found a clear positive impact of the information and communication element on risk management in banks during crises. Interview respondents expressed near-unanimous agreement on the critical role of a robust information and communication system in enhancing banks' ability to manage risks, particularly during crises. They emphasized the system's importance in providing accurate and timely data, enabling senior management to make informed and sound decisions, and reducing the potential for errors.

Specific policies and procedures related to risk reporting were seen as crucial for early detection and handling of challenges and risks, providing a clear framework for both internal and external communication. Respondents unanimously agreed that the development and activation of the information and communication system, including mechanisms like "risk whistleblowing," strengthens a bank's preparedness to counter crises and mitigate their negative consequences.

This finding aligns with the research of Ghanem and Awad (2023), Abass et al. (2023), Li and Chen, (2022), Mwale and Habaazoka (2023), Rahim et al. (2018), and Dwiyanti et al. (2022). However, it contradicts the findings of Liu and Chen (2021). This discrepancy underscores the need for further research to explore the varying impact of information and communication systems in different contexts.

The study found no statistically significant impact of the monitoring element on risk management in Palestinian banks during crises. However, the interview responses revealed a more nuanced perspective. While 35% of participants acknowledged the importance of monitoring processes, both independent and continuous, they argued that these processes are not the primary driver of improved risk management practices in Palestinian banks, especially during crises. They emphasized that banks largely rely on instructions from the Palestine Monetary Authority (PMA), which sets the foundation for risk management practices. Bank management is obligated to adhere to these instructions and employ precautionary monitoring to minimize and mitigate potential losses through measures like building reserves, capital buffers, and ensuring prompt recovery.

This finding contradicts the conclusions of Liu and Chen (2021), Mwale and Habaazoka (2023), Pham (2021), Rahim et al. (2018), Thach and Phuong (2017), Al Momani et al. (2021) and Abdul Rahim and Faeeq (2016). This discrepancy highlights the need for further investigation into the role of monitoring in risk management within the specific context of Palestinian banks, particularly during crises. The influence of regulatory directives and the potential limitations of internal monitoring processes within this context warrant further exploration.

Conclusion

This study investigates the impact of a comprehensive internal control system (ICS), incorporating its five COSO components (control environment, risk assessment, control activities, information and communication, and monitoring), on the risk management practices of Palestinian banks during crises. The study quantitatively and qualitatively assessed the overall effectiveness of the ICS and the individual contribution of each component. This integrated approach provided insights into enhancing banking risk management during crises, identifying areas for improvement within the ICS, and ultimately strengthening the resilience of the Palestinian banking sector. The findings contribute to a deeper understanding of the role of ICS in mitigating banking risks and fostering more robust risk management practices.

This study found a positive and significant impact of implementing an internal control system on risk management in Palestinian banks during crises. While three dimensions—control environment, risk assessment, and information and communication—demonstrated a significant effect on risk management, two dimensions, control activities and monitoring, showed no significant influence. The information and communication dimension emerged as the most

influential factor on risk management in Palestinian banks during crises, followed by risk assessment and then the control environment.

This study offers several key contributions. For bank boards and senior management, the findings highlight the crucial link between a robust internal audit function, effective internal control systems (ICS), and strengthened risk management. This enables improved risk assessment, mitigation strategies, and ultimately, reduced negative impacts. For the Palestine Monetary Authority (PMA), the research provides evidence supporting a reevaluation of its approach to internal audit effectiveness and ICS quality, leading to better risk management outcomes for Palestinian banks, particularly during crises. This informs the development of a more adaptive and reliable regulatory framework, enabling tailored ICS strategies that proactively address risks and enhance the resilience of banks. Finally, the study advocates for the development of additional standards and guidelines promoting integrity and transparency in ICS design and implementation, fostering greater confidence in the banking sector and contributing to long-term financial stability.

This study makes significant theoretical contributions by expanding the application of agency, stakeholder, and signaling theories to the context of internal control and risk management in banks, particularly during crises. The study's key theoretical contribution is an integrative model demonstrating the *cumulative* impact of the five internal control components on risk management effectiveness, going beyond prior research that has treated these components in isolation. In line with agency theory, our findings underscore the importance of internal controls in mitigating agency problems by curbing opportunistic behavior, enhancing disclosure, and fostering trust. Furthermore, from a stakeholder theory perspective, the study demonstrates that robust internal control systems extend benefits beyond shareholders to include regulators, depositors, and the broader financial community, by improving information flow and stakeholder engagement. This study makes a novel contribution to Signaling Theory by analyzing how internal control systems act as *credible* signals of a bank's commitment to integrity, transparency, and sound governance. We find that a robust internal control system serves as a powerful signal, enhancing internal performance and bolstering stakeholder confidence in the bank's stability, especially during crises. These effective control and monitoring mechanisms signal a reduction in information asymmetrical and uncertainty, thereby strengthening the overall stability of the banking sector.

This study's findings, while insightful, are subject to several limitations. The cross-sectional design, focusing solely on Palestinian banks, restricts generalizability; longitudinal studies and broader geographical scope could reveal different outcomes. The model's variables, selected based on a specific literature stream, may omit relevant factors identifiable within a wider body of research. Furthermore, potential response bias, including underestimation or neutrality due to the sensitive nature of some questions, cannot be entirely ruled out despite efforts to minimize non-response. Finally, the reliance on the COSO (2013) framework for internal control limits the perspective; future research could explore alternative models, such as COCO or other international frameworks, for a more comprehensive understanding.

Appendix 1 Descriptive analysis of study variables

See Tables 11, 12, 13, 14, 15 and 16.

Table 11 Impact of control environment on risk management in Palestinian banks during crises

Item No	Control environment indicator	Mean	SD	Impact	*t* value	*p* Value	Rank (Mean)
1	Risk management committee enhances internal control	4.16	0.705	High	20.737	0.000	3
2	Org. Structure aligns with bank operations	4.15	0.720	High	20.207	0.000	4
3	A clear, written recruitment policy exists	4.14	0.734	High	19.707	0.000	5
4	Approved policies for employee training	4.05	0.775	High	17.128	0.000	7
5	Senior management builds strategic plans	4.13	0.655	High	21.842	0.000	6
6	The code of ethics instills integrity	4.23	0.675	Very High	23.073	0.000	1
7	Documented job descriptions inform employees	4.22	0.660	Very High	23.344	0.000	2
8	Skilled staff possesses specialized knowledge	4.14	0.714	High	20.162	0.000	5
Mean Across Indicators		**4.15**	**0.557**	High	26.168	0.000	

Table 12 Impact of risk assessment on risk management in Palestinian banks during crises

Item No	Risk assessment indicator	Mean	SD	Impact	*t* value	*p* value	Rank (Mean)
9	Bank has clear and defined objectives	4.23	0.582	Very High	26.613	0.000	2
10	Senior management identifies bank's risks	4.21	0.628	Very High	24.409	0.000	4
11	Senior management addresses potential risks	4.22	0.641	Very High	24.048	0.000	3
12	Fraud risks are evaluated (e.g., corruption)	4.18	0.623	High	23.977	0.000	6
13	Occupational fraud risks are assessed	4.11	0.709	High	19.842	0.000	8
14	Risk management dept. reports to the board on risk management	4.24	0.632	Very High	24.896	0.000	1
15	Fraud exposure to financial statements is assessed	4.15	0.626	High	23.220	0.000	7
16	External event risks are evaluated (e.g., political changes)	4.10	0.636	High	21.863	0.000	9
17	Risk reports include assessments for senior management approval	4.19	0.668	High	22.598	0.000	5
18	Risk manager discusses high-risk acceptance with management	4.11	0.663	High	21.212	0.000	8
19	Risk manager reports to board committee on rejected risk levels	4.15	0.737	High	19.733	0.000	7
Mean Across Indicators		4.17	0.515	High	**28.827**	0.00	

Table 13 Impact of control activities on risk management in Palestinian banks during crises

Item No	Control activity indicator	Mean	SD	Impact	*t* value	*p* value	Rank (Mean)
20	Tasks are appropriately segregated for bank employees	4.18	0.662	High	22.560	0.000	1
21	Controls limit inappropriate manual interventions	4.16	0.643	High	22.862	0.000	3
22	Administrative procedures are simple and clear	3.99	0.748	High	16.802	0.000	7
23	Senior management monitors employee living standards	3.69	0.972	High	8.942	0.000	8
24	Performance is compared to budgets and forecasts	4.05	0.716	High	18.540	0.000	5
25	Appropriate delegation of authority exists	4.01	0.696	High	18.291	0.000	6
26	System monitors strategic division plan results	4.01	0.687	High	18.533	0.000	6
27	Independent internal audit evaluates controls and risks	4.17	0.746	High	19.822	0.000	2
28	Control activities are part of daily duties	4.11	0.723	High	19.345	0.000	4
Mean Across Indicators		4.04	0.588	High	22.383	0.00	

Table 14 Impact of information and communication systems on risk management in Palestinian banks during crises

Item No	Information and communication indicator	Mean	SD	Impact	*t* Value	*p* value	Rank (Mean)
29	Strategic plan exists for developing bank's info systems	4.09	0.671	High	20.618	0.000	4
30	Periodic performance reports are generated	4.12	0.618	High	22.895	0.000	1
31	Timely information is provided to customers	4.03	0.722	High	18.071	0.000	7
32	Bank has suitable communication channels with customers	4.11	0.673	High	20.915	0.000	2
33	Employees receive necessary information to carry out tasks	4.08	0.678	High	20.054	0.000	5
34	The communication system meets senior management's needs	4.06	0.656	High	20.356	0.000	6
35	Complaint boxes exist for feedback	4.10	0.684	High	20.341	0.000	3
36	Senior management provides a fraud reporting hotline	3.96	0.823	High	14.788	0.000	8
Mean Across Indicators		4.07	0.538	High	25.118	0.00	

Table 15 Impact of monitoring activities on risk management in Palestinian banks during crises

Item No	Monitoring activity indicator	Mean	SD	Impact	*t* value	*p* value	Rank (Mean)
37	Internal audit evaluates fraud controls	4.17	0.630	High	23.593	0.000	4
38	Bank management reports violations to the PMA	4.09	0.699	High	19.804	0.000	6
39	The audit committee enhances internal audit independence	4.23	0.644	Very High	24.069	0.000	1
40	Internal audit operates independently from operations	4.21	0.628	Very High	24.409	0.000	2
41	Internal audit reports control system deficiencies	4.18	0.687	High	21.626	0.000	3
42	Senior management seeks internal audit for the branch needs	3.87	0.862	High	12.743	0.000	7
43	Internal audit assists in reducing fraudulent practices	4.14	0.570	High	25.373	0.000	5
Mean Across Indicator		4.13	0.535	High	26.667	0.00	

Table 16 Risk management practices in Palestinian Banks

Item no	Risk management practice indicator	Mean	SD	Impact	*t* value	*p* value	Rank (Mean)
44	Alignment of strategy, policies, and risk methodologies with risk limits	4.16	0.578	High	10.438	0.000	4
45	Clear criteria for defining and identifying each risk type	4.17	0.630	High	23.593	0.000	3
46	Review of policies to protect the bank from risks	4.26	0.596	Very High	26.658	0.000	1
47	Business continuity management plans are prepared and updated	4.15	0.636	High	22.857	0.000	5
48	Compliance with risk-related legal and regulatory requirements	4.26	0.696	Very High	22.952	0.000	1
49	Risk management infrastructure keeps pace with digital changes	4.09	0.742	High	18.64	0.000	10
50	The risk management plan is based on current events and future projections	4.06	0.741	High	18.13	0.000	12
50	The risk management committee monitors the department's work plan	4.14	0.690	High	20.968	0.000	6
52	An internal audit provides consulting to the risk management department	4.13	0.767	High	18.557	0.000	7
53	The risk department reports potential risks to the risk committee timely	4.17	0.746	High	19.822	0.000	3
54	Use of COSO-ERM framework for managing risks	3.83	0.833	High	12.616	0.000	14
55	Training in risk management staff	4.02	0.748	High	17.229	0.000	13
56	Development of strategies for managing potential risks	4.15	0.656	High	22.178	0.000	5
57	Use of modern auditing technologies to detect risks	4.06	0.724	High	18.56	0.000	12
58	PMA intervenes early to prevent capital adequacy decline	4.08	0.744	High	18.39	0.000	11
59	An independent, specialized risk management department exists	4.24	0.696	Very High	22.497	0.000	2
60	Multiple procedures in place to manage risks	4.12	0.648	High	21.842	0.000	8
61	Clear internal control systems to assess capital adequacy and reserves	4.11	0.697	High	20.083	0.000	9
62	Written and clear risk management policy	4.24	0.722	Very High	21.669	0.000	2
63	Alignment between risk policy and faced risks	4.09	0.680	High	20.336	0.000	10
64	Approved risk charter and employee compliance assurances	4.11	0.732	High	19.116	0.000	9
65	Risk department calculates credit, market, and operational risks and monitors capital adequacy	4.11	0.752	High	18.707	0.000	9
Mean across indicators		4.12	0.535	High	96.177	0.00	

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