Journal Website

Article history:
Received 10 December 2025
Revised 14 February 2026
Accepted 02 March 2026
Published 01 May 2026

International Journal of Innovation Management and Organizational Behavior

Volume 6, Issue 3, pp 1-12

E-ISSN: 3041-8992

Development of a Comprehensive Continuous Auditing Model for Risk Management in Iranian Commercial Banks

Elyas. Akbari[1], Zahra. Karimi Takanloo[2*], Sajad. Naghdi[2], Jafar. Haghighat[2]

[1] Aras International Campus, University of Tabriz, Tabriz, Iran
[2] Department of Economic Sciences, Faculty of Economics and Management, University of Tabriz, Tabriz, Iran

*** Corresponding author email address**: z.karimi@tabrizu.ac.ir

A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Akbari, E., Karimi Takanloo, Z., Naghdi, S., & Haghighat, J. (2026). Development of a Comprehensive Continuous Auditing Model for Risk Management in Iranian Commercial Banks. *International Journal of Innovation Management and Organizational Behavior, 6*(3), 1-12.
https://doi.org/10.61838/kman.ijimob.5217

A B S T R A C T

Objective: The present study aimed to develop a comprehensive continuous auditing model with a focus on risk management in Iranian commercial banks.

Methods and Materials: This study employed a mixed-methods design (qualitative–quantitative). In the qualitative phase, the grounded theory approach based on Anselm Strauss and Juliet Corbin was utilized, while the quantitative phase complemented the analysis. The statistical population in the qualitative section consisted of 22 banking experts, including managers and heads of internal audit departments from Tejarat, Mellat, and Saderat banks, as well as academic specialists, who were selected through snowball sampling. In the quantitative section, the sample size was determined purposively and included 146 senior managers from the aforementioned banks in East Azerbaijan Province. Data collection tools included structured interviews (qualitative) and a questionnaire developed based on the qualitative model (quantitative). Data analysis in the qualitative phase was conducted using three-stage coding (open, axial, and selective coding), and in the quantitative phase through structural equation modeling (SEM) using SmartPLS version 3.1.1.

Findings: Qualitative analysis led to the development of a six-dimensional conceptual model, including causal conditions (risk identification and assessment, controls, and assurance), contextual conditions (infrastructure, human resources, and culture), intervening conditions (complexity, rate of change, data, security, and cost), the core phenomenon (continuous auditing with a focus on risk management), strategies (managerial, technological, and structural), and outcomes (risk reduction and managerial development). The results of the quantitative phase confirmed a good model fit and revealed significant relationships among the model dimensions; in particular, a strong and statistically significant relationship was observed between causal conditions and the core phenomenon, as well as between the core phenomenon and strategies, at a high confidence level.

Conclusion: The findings indicate that the successful implementation of continuous auditing and the achievement of optimal risk management in Iranian commercial banks require the identification and strengthening of enabling factors, proactive management of challenges, and the application of comprehensive strategies (managerial, technological, and structural). The proposed model provides an effective framework for enhancing supervision and promoting managerial development within the country's banking system.

Keywords: *Continuous auditing, risk management, Iranian commercial banks, grounded theory, structural equation modeling*

1 Introduction

In recent decades, the increasing complexity of financial systems, coupled with rapid technological advancements and heightened regulatory pressures, has fundamentally transformed the landscape of risk management and auditing in the banking sector. Commercial banks, as critical pillars of economic stability, are continuously exposed to a wide range of financial, operational, and compliance risks that necessitate robust and adaptive management mechanisms. The dynamic nature of these risks, including credit risk, liquidity risk, market volatility, and operational disruptions, has made traditional auditing approaches insufficient for ensuring timely detection and mitigation of potential threats. Consequently, there has been a growing emphasis on integrating continuous auditing practices with comprehensive risk management frameworks to enhance transparency, accountability, and decision-making effectiveness (Mogharrab et al., 2021; Shams & Rahimpour, 2022).

Risk management, as a systematic process for identifying, assessing, and mitigating uncertainties, plays a pivotal role in organizational performance and sustainability. In the banking industry, effective risk management not only contributes to financial stability but also supports strategic initiatives such as innovation, competitiveness, and long-term value creation. Empirical evidence suggests that well-structured risk management systems can significantly influence key organizational outcomes, including new product development, operational efficiency, and financial resilience (Asgarnezhad Nouri et al., 2022; Shirbandi et al., 2023). Furthermore, the integration of enterprise risk management (ERM) into organizational processes has been shown to strengthen the relationship between financing decisions and earnings quality, thereby reducing the likelihood of opportunistic financial reporting behaviors (Pourahmadi & Farsad Amanollahi, 2021). These findings underscore the importance of adopting holistic and proactive risk management approaches within banking institutions.

Parallel to the evolution of risk management, the auditing function has undergone substantial transformation, shifting from traditional periodic assessments to more continuous, technology-driven processes. Continuous auditing, defined as the automated and real-time collection and analysis of financial and operational data, enables organizations to detect anomalies, assess risks, and respond to emerging issues in a timely manner. This approach enhances the effectiveness of internal audit functions by providing ongoing assurance and facilitating data-driven decision-making. Research indicates that continuous auditing can significantly improve the planning and execution of risk-based internal audits, thereby enhancing audit quality and organizational performance (Attaf & Bensbahou, 2025; Sajjadi & Hooshmand Kashani, 2024). Moreover, the implementation of risk-based internal audit approaches has been found to strengthen risk management processes and improve organizational control environments, particularly in financial institutions (Attaf & Bensbahou, 2025; Omidvari, 2021).

Despite these advancements, the implementation of continuous auditing in banking systems faces numerous challenges, including technological constraints, data integration issues, organizational resistance, and regulatory complexities. The successful adoption of continuous auditing requires not only advanced technological infrastructure but also a supportive organizational culture and skilled human resources capable of leveraging digital tools effectively. Studies have highlighted that the lack of integrated systems and insufficient expertise in data analytics can hinder the effectiveness of continuous auditing initiatives (Polizzi & Scannella, 2023). Additionally, internal control weaknesses in banking institutions can further exacerbate risks and limit the ability of auditing systems to provide reliable assurance, emphasizing the need for comprehensive frameworks that address both structural and operational deficiencies (Mortazavi & Shokrkhah, 2022).

Another critical aspect in this domain is the role of internal controls and governance mechanisms in supporting risk management and auditing functions. Strong internal control systems serve as the foundation for effective auditing by ensuring the accuracy, reliability, and integrity of financial information. Empirical studies have demonstrated that robust internal controls are positively associated with improved cash asset management and reduced financial irregularities (Ezzati Jadidi, 2022). Furthermore, the interaction between organizational culture, auditor experience, and ethical considerations has been shown to influence audit quality and fairness, highlighting the multidimensional nature of auditing effectiveness (Ramezani et al., 2022). These insights suggest that the development of comprehensive auditing models must consider not only technical factors but also behavioral and cultural dimensions.

In addition to internal factors, external environmental conditions and strategic orientations also play a significant

IJIMOB
E-ISSN: 3041-8992

role in shaping risk management and auditing practices. Competitive strategies, such as cost leadership and differentiation, have been found to influence organizational risk profiles, with risk management and intellectual capital acting as mediating factors in this relationship (Vaghfi et al., 2022). Similarly, macroeconomic conditions, regulatory frameworks, and market dynamics can impact the effectiveness of risk management systems and auditing processes. For instance, the relationship between earnings management, business strategies, and bankruptcy risk underscores the importance of aligning risk management practices with broader organizational objectives to ensure financial stability and sustainability (Rabiei & Fotouhi Fashtami, 2025).

Moreover, the integration of process-oriented approaches and structured redesign methodologies has further enhanced the effectiveness of auditing and risk management systems. Process standardization and optimization enable organizations to streamline operations, reduce inefficiencies, and improve control mechanisms. In this context, structured process models have been proposed as effective tools for redesigning organizational processes and enhancing service delivery, particularly in complex and dynamic environments such as banking (Mukherjee et al., 2021). These approaches emphasize the importance of aligning auditing practices with organizational processes to achieve comprehensive risk management outcomes.

The growing body of literature also highlights the importance of developing context-specific models that address the unique characteristics and challenges of different industries. In the banking sector, the need for tailored risk management frameworks is particularly critical due to the sector's sensitivity to financial shocks and regulatory requirements. Studies focusing on various industries, including hospitality and pharmaceuticals, have demonstrated that industry-specific risk management models can significantly enhance organizational resilience and performance (Beikzadeh Abbasi, 2024; Khodabakhshi Gorgani et al., 2022). These findings suggest that a one-size-fits-all approach to risk management and auditing may be inadequate, and that customized models are necessary to address the specific needs and constraints of banking institutions.

Furthermore, advancements in quantitative modeling and analytical techniques have provided new opportunities for optimizing risk management practices in banks. The use of mathematical algorithms, fuzzy logic, and risk indicators has enabled more accurate assessment and management of financial risks, particularly in areas such as foreign exchange asset portfolio optimization (Bayati et al., 2024). These innovations highlight the potential of integrating advanced analytical tools with continuous auditing systems to enhance risk management capabilities and support strategic decision-making.

In the Iranian banking context, the need for effective risk management and continuous auditing is particularly pronounced due to the evolving economic environment, regulatory challenges, and increasing competition. While previous studies have explored various aspects of risk management and auditing, there remains a gap in the development of comprehensive models that integrate these two domains in a cohesive and systematic manner. Existing research has primarily focused on isolated components, such as internal controls, audit risk, or risk management practices, without providing an integrated framework that captures the complex interactions among these elements (Sadati Tilehboni et al., 2022; Vakilzadeh Rouhalamini et al., 2024).

Given the critical importance of risk management and auditing in ensuring the stability and performance of banking institutions, there is a clear need for developing a comprehensive model of continuous auditing that is specifically designed to address the challenges and requirements of Iranian commercial banks. Such a model should incorporate key dimensions, including causal factors, contextual conditions, intervening variables, strategic responses, and expected outcomes, to provide a holistic understanding of the processes involved. By integrating theoretical insights and empirical findings from previous studies, this research aims to contribute to the existing body of knowledge and provide practical guidance for policymakers, managers, and auditors in the banking sector.

Therefore, the aim of this study is to develop a comprehensive model of continuous auditing with a focus on risk management in Iranian commercial banks.

2 Methods and Materials

According to the research onion framework proposed by Mark Saunders et al. (2009), this study is classified as interpretivist in terms of paradigm, applied in terms of purpose, mixed-method (qualitative–quantitative) in terms of data type, field–library-based in terms of data collection method, and grounded theory with the Anselm Strauss and Juliet Corbin approach in the qualitative section, and survey-based in the quantitative section. The present study consisted of two phases: qualitative and quantitative. In the qualitative

phase, data were collected using a grounded theory approach through interviews and literature review. Subsequently, the qualitative data were coded, and after identifying the main components of the study, a questionnaire was developed. With the collection of quantitative data, the model of continuous auditing aimed at risk management in Iranian commercial banks was developed and validated.

In the qualitative section of the study, the statistical population included banking experts such as managers, deputies, and heads of internal audit departments from Tejarat, Mellat, and Saderat banks, as well as university faculty members specializing in auditing and risk management. Snowball sampling was employed to select participants for the qualitative phase. This implies that, in the initial stage involving interviews with academic experts and professionals in the field, purposive sampling was applied. A critical aspect of this method is adherence to systematic procedures that can lead to the development of an inductively grounded theory. The fundamental assumption of grounded theory is that individuals perceive, shape, and organize their environment, even though such an environment may appear disordered or irrational from another observer's perspective. Reality is considered a social construct; in other words, our everyday world is not a pre-existing reality but is shaped through our thoughts and actions, and becomes real through our lived experiences. This method is applied to theorizing and explaining social processes underlying human interactions (Adib Haj Bagheri, 2006). In other words, the aim of this method is to develop a theory that explains fundamental social processes, and its methodological question can be framed as follows: how does the fundamental social process X occur within a given environmental context? (Strauss & Corbin, 2008).

In the quantitative phase of the study, the statistical population consisted of all senior managers, consultants, and expert-level executives in Tejarat, Mellat, and Saderat banks in East Azerbaijan Province, to whom the research questionnaires were administered. The sample size in the quantitative section was determined using G*Power software, and the sampling method, based on the objectives and nature of the study, was purposive criterion-based sampling. Based on the input parameters in G*Power, including a significance level of 0.05, statistical power of 0.95, medium effect size (0.15), and six variables, the appropriate sample size for the present study was calculated as 146 participants.

3 Findings and Results

As stated, to identify the dimensions and components of the study, the qualitative findings are presented in two sections: demographic characteristics of the interviewees and the coding process, followed by the quantitative findings in two sections: descriptive analysis and structural equation modeling.

Table 1

Demographic Characteristics of Interviewees

Interviewee Code	Age (Years)	Gender	Education Level	Occupation (Position)	Work Experience (Years)
1	49	Male	PhD	University Faculty Member	15
2	63	Male	PhD	University Faculty Member	21
3	60	Male	Master's Degree	Head of Internal Audit (Bank)	24
4	57	Male	PhD	University Faculty Member	20
5	38	Female	PhD	University Faculty Member	5
6	44	Female	PhD	University Faculty Member	11
7	50	Male	PhD	Bank Manager	20
8	37	Male	PhD	Head of Internal Audit (Bank)	5
9	61	Male	PhD	Bank Manager	24
10	48	Male	PhD	Bank Manager	12
11	46	Male	PhD	University Faculty Member	11
12	40	Male	PhD	University Faculty Member	10
13	54	Female	PhD	Bank Manager	20
14	36	Male	PhD	University Faculty Member	5
15	41	Male	Master's Degree	Deputy Manager (Bank)	10
16	45	Male	PhD	Bank Manager	11
17	55	Male	PhD	Head of Internal Audit (Bank)	18
18	48	Male	PhD	Deputy Manager (Bank)	16
19	39	Female	PhD	Deputy Manager (Bank)	5

20	52	Male	PhD	Bank Manager	21
21	43	Male	PhD	University Faculty Member	10
22	47	Female	PhD	Bank Manager	11

In the present study, after conducting the interviews, the coding process was carried out. Initially, open (initial) coding was performed, resulting in 171 open codes. After removing duplicate codes and those with substantial overlap, 99 open codes remained. Following the identification of open codes, axial coding was conducted, which led to the identification of 19 categories and 42 concepts. In the selective coding stage, each of the categories and concepts identified in the previous stage was assigned to selective codes, including causal conditions, contextual conditions, intervening conditions, strategies, and consequences.

Table 2

Model Dimensions, Categories, Concepts, and Initial (Open) Codes of Continuous Auditing for Risk Management in Iranian Commercial Banks

Dimension	Category	Concept	Initial (Open) Codes
Causal Conditions	Risk Identification and Assessment	Risk Identification	Identifying bank-related risks; examining processes, systems, and operational environments to identify risk factors
		Risk Analysis	Determining the likelihood of each identified risk; using risk matrices for prioritization; assessing the impact of risks on organizational objectives
	Control Evaluation	Internal Control Testing	Evaluating the quality and efficiency of internal control systems; identifying weaknesses and strengthening controls
		Control Effectiveness	Assessing outcomes of existing auditing systems; ensuring efficiency and effectiveness of auditing processes
	Assurance	Financial Reporting Accuracy	Role of continuous auditing in reducing legal and financial risks; collecting evidence to ensure accuracy of financial statements
		Risk Management Effectiveness	Ensuring effective management of key risks; ensuring compliance of auditing systems with standards
Contextual Conditions	Infrastructure	Technological Infrastructure	Availability of auditing and risk management technologies; ability to provide required technologies
	Human Resources Management	Staff Expertise	Employees' ability to use technology; familiarity with technologies in auditing and risk management processes
		Meritocracy	Assigning positions based on merit; promoting and motivating employees based on competence
		Specialization	Recruiting specialized personnel; identifying organizational skill needs
	Auditing Culture	Resistance to Change	Employee and managerial resistance; fear of change and unfamiliarity with new technologies
		Organizational Culture Diversity	Cultural diversity and its role in technology adoption
Intervening Conditions	Complexity	System Integration	Technical complexities in integrating auditing systems; need for structural changes and investment
		Technical Support Complexity	Need for strong technical support; lack of expertise; requirement for specialized teams
	Rapid Change	Synchronization Challenges	Rapid technological changes; necessity for system updates
		Change Acceptance	Adoption of innovations; leveraging new technologies
	Data	Big Data Management	Managing large volumes of data; need for advanced tools and infrastructure
		Data Quality	Impact of incomplete/incorrect data; lack of effective data cleansing processes
	Security	Data Protection	Protection against cyber threats; need for security measures
		Regulations	Compliance with data protection laws and regulations
	Cost	Initial Costs	High initial investment for implementation
		Maintenance Costs	Continuous system maintenance and update costs
Core Phenomenon	Continuous Auditing for Risk Management	Audit Risk Identification	Identifying audit risks; defining scope and objectives; identifying key risks
		Audit Risk Assessment	Evaluating importance and probability; prioritizing risks
		Audit Risk Response	Providing reliable audit reports; collecting sufficient evidence; managerial responses to reduce errors
Strategies	Managerial	Human Resource Optimization	Recruiting and retaining qualified personnel

	Continuous Auditing Practices	Performing audits regularly and systematically
	Training and Culture Building	Educating employees; gradual adaptation to new systems
Technological	Technology Provision	Identifying and supplying required technologies
	Technical Human Resources	Recruiting and training specialized technology staff
Structural	Documentation	Recording and storing audit and risk management data
	Integration	Structural changes; investment in system integration; resolving integration issues

The integrated results presented in Table 2 demonstrate that the comprehensive model of continuous auditing for risk management in Iranian commercial banks is structured around multiple interrelated dimensions, including causal conditions, contextual conditions, intervening conditions, the core phenomenon, and strategic responses. The causal dimension emphasizes systematic risk identification, evaluation, internal control assessment, and assurance mechanisms as foundational drivers of continuous auditing. Contextual conditions highlight the critical role of technological infrastructure, human resource capabilities, and organizational culture in facilitating or constraining implementation. Intervening conditions, such as system complexity, rapid technological changes, data-related challenges, security concerns, and cost factors, act as moderating elements that influence the effectiveness of the model. The core phenomenon centers on continuous auditing processes aimed at identifying, assessing, and responding to audit risks in a structured and evidence-based manner. Finally, strategic dimensions—including managerial, technological, and structural strategies—provide actionable pathways for operationalizing the model through human resource optimization, technological enablement, and organizational restructuring. Collectively, these findings reflect a coherent and multidimensional framework in which effective risk management through continuous auditing depends on the alignment and interaction of these dimensions.

Table 3

Descriptive Statistics of Demographic Characteristics of Participants in the Quantitative Phase

Variable	Category	Frequency	Percentage (%)
Age	Under 40 years	41	28.1
	40–50 years	74	50.7
	Above 50 years	31	21.2
	Total	146	100
Gender	Female	47	32.2
	Male	99	67.8
	Total	146	100
Marital Status	Single	21	14.4
	Married	125	85.6
	Total	146	100
Work Experience	10 years or less	23	15.8
	10–15 years	63	43.2
	15–20 years	43	29.4
	More than 20 years	17	11.6
	Total	146	100

In this section of the study, the results related to model fit and the relationships among the research variables are presented. Structural equation modeling (SEM) with the partial least squares (PLS) approach was employed. This algorithm consists of three main stages: (1) evaluation of measurement models, (2) evaluation of the structural model, and (3) evaluation of the overall model.

According to the PLS analysis algorithm, two criteria—reliability and validity—are used to assess the measurement model. Regarding the factor loadings of the indicators, the results showed that all items related to the variables had acceptable validity, as all factor loadings were greater than 0.40.

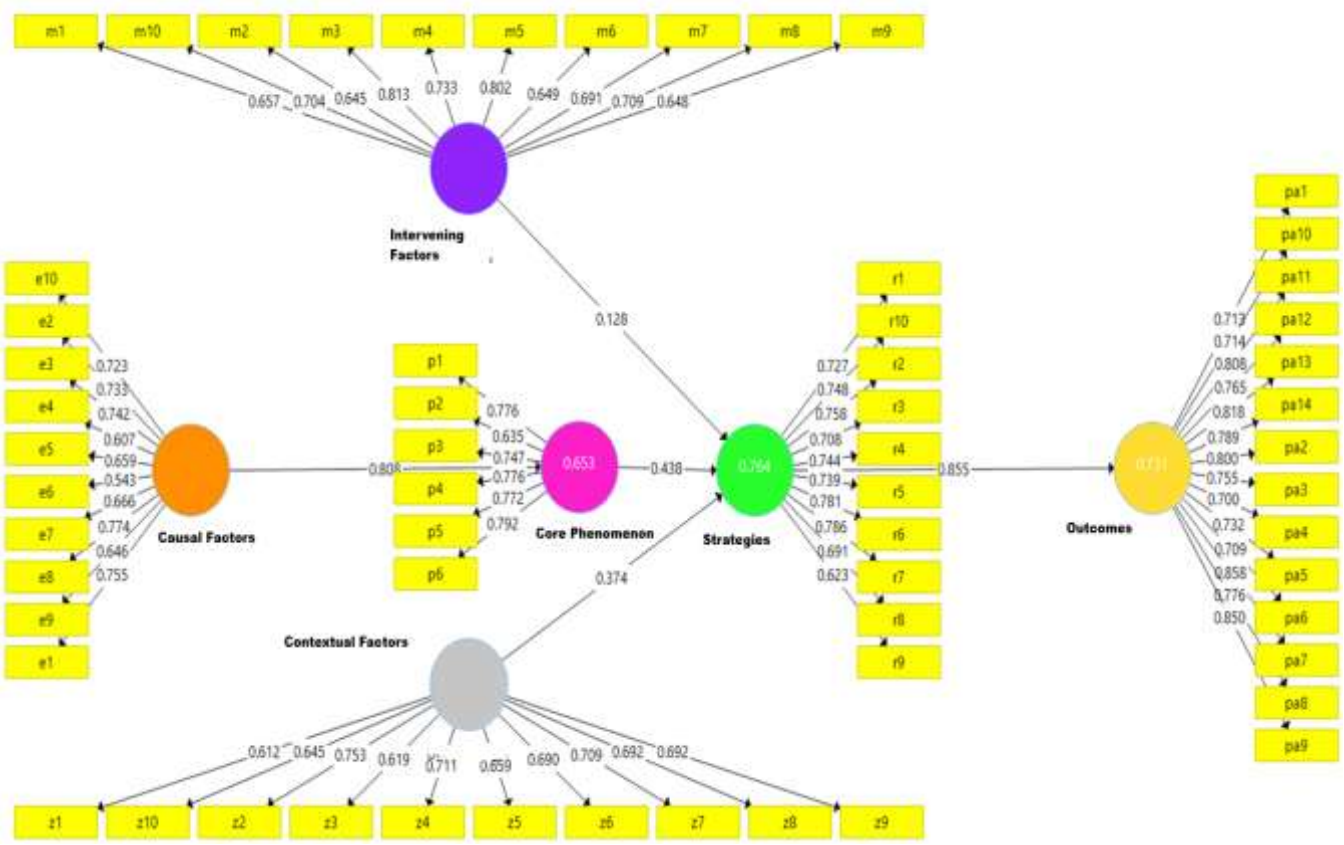
Table 4

Reliability Assessment Using Cronbach's Alpha and Composite Reliability

Latent Variables	Cronbach's Alpha	Composite Reliability (CR)
Causal Conditions	0.887	0.823
Contextual Conditions	0.914	0.874
Intervening Conditions	0.798	0.776
Core Phenomenon	0.824	0.796
Strategies	0.866	0.823
Outcomes	0.922	0.893

Figure 1

Model with Factor Loadings



Cronbach's alpha is a measure of reliability and is considered an appropriate index for evaluating internal consistency, while composite reliability (CR) is regarded as a more advanced measure in PLS analysis. Its advantage over Cronbach's alpha lies in the fact that construct reliability is calculated not absolutely, but based on the correlations among constructs.

The second criterion for evaluating the measurement model is convergent validity, which examines the degree of correlation between each construct and its indicators.

Table 5

Average Variance Extracted (AVE) of Latent Variables

Latent Variables	AVE
Causal Conditions	0.957
Contextual Conditions	0.876

Intervening Conditions	0.927
Core Phenomenon	0.880
Strategies	0.908
Outcomes	0.865

Based on the AVE values presented in Table 9, it can be concluded that the latent variables exhibit satisfactory convergent validity.

To evaluate the structural model using the PLS method, the coefficients of determination (R^2), predictive relevance (Q^2), and variance inflation factor (VIF) were employed. Higher R^2 values for endogenous constructs indicate better model fit. Based on the relevant table, the strong fit of the structural model is confirmed. Furthermore, the Q^2 values ($Q^2 > 0$) for endogenous constructs indicate acceptable predictive relevance of the structural model.

Table 6

R^2 and Q^2 Coefficients of Endogenous Variables

Endogenous Variables	R^2	Q^2
Core Phenomenon	0.653	0.279
Strategies	0.764	0.311
Outcomes	0.731	0.284

The following table presents the results of the variance inflation factor (VIF).

Table 7

Variance Inflation Factor (VIF)

Latent Variables	VIF
Causal Conditions	1.116
Contextual Conditions	2.115
Intervening Conditions	1.057
Core Phenomenon	1.394
Strategies	1.007
Outcomes	1.924

According to the results, all VIF values are below 5, indicating the absence of multicollinearity and confirming the adequacy of the measurement instrument and the model fit.

After evaluating both the measurement and structural components of the model, the overall model fit was assessed using the goodness-of-fit (GOF) index. Based on the thresholds of weak (0.01), moderate (0.25), and strong (0.36), the obtained GOF value of 0.645 indicates a strong overall model fit. The PLS data analysis algorithm demonstrates that, after confirming the measurement, structural, and overall model fit, hypothesis testing can be conducted and research findings can be derived.

Model fit based on t-values requires that these coefficients exceed 1.96 to be considered significant at the 95% confidence level.

Table 8

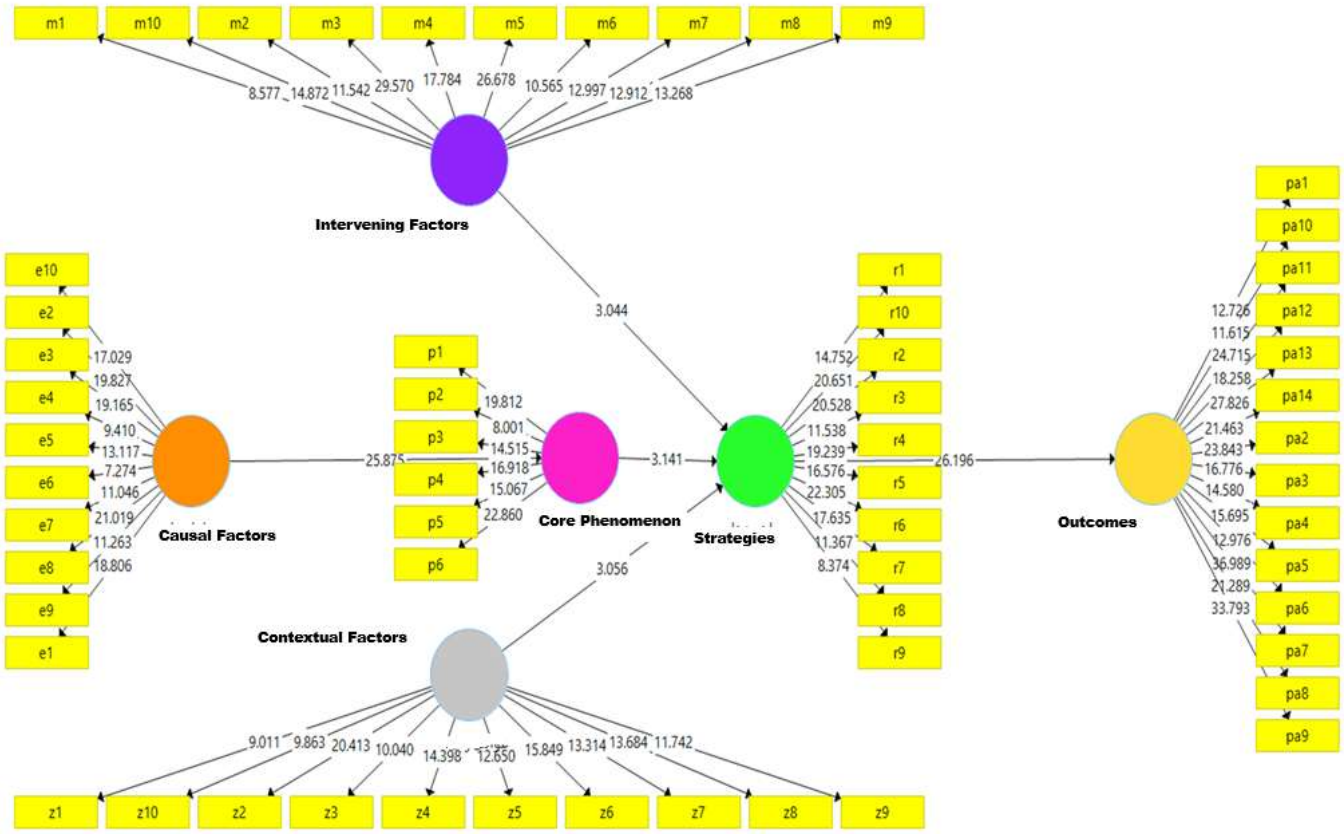
Results of PLS Analysis and Structural Path Testing

Path	Path Coefficient	t-value	Significance (p)	Result
Causal Conditions → Core Phenomenon	0.808	25.875	0.001	Confirmed
Core Phenomenon → Strategies	0.438	3.141	0.002	Confirmed
Contextual Conditions → Strategies	0.734	3.056	0.002	Confirmed
Intervening Conditions → Strategies	0.128	3.044	0.002	Confirmed
Strategies → Outcomes	0.855	26.196	0.001	Confirmed

At the 95% confidence level, based on the results presented in table above, since all t-values exceed 1.96 and all significance levels are below 0.05, it can be concluded that the research model is appropriate and all hypothesized paths are supported. Furthermore, the results indicate that causal conditions have a significant relationship with the core phenomenon (p = 0.001, t = 25.875), and the core phenomenon also has a significant relationship with strategies (p = 0.002, t = 3.141). Additionally, contextual conditions (p = 0.002, t = 3.056) and intervening conditions (p = 0.002, t = 3.044) significantly influence strategies, and finally, strategies have a significant effect on outcomes (p = 0.001, t = 26.196).

Figure 2

Model with T-Values



4 Discussion

The findings of the present study provide a comprehensive and empirically validated model of continuous auditing with a focus on risk management in Iranian commercial banks, integrating multiple dimensions including causal conditions, contextual factors, intervening variables, strategic responses, and organizational outcomes. The structural model results demonstrated a strong and statistically significant relationship between causal conditions and the core phenomenon of continuous auditing, indicating that effective identification and assessment of risks, evaluation of internal controls, and assurance mechanisms are fundamental drivers in the successful implementation of continuous auditing systems. This finding is consistent with prior research emphasizing the critical role of risk-based internal auditing in enhancing organizational control environments and improving risk management processes (Attaf & Bensbahou, 2025; Omidvari, 2021). In particular, the significant impact of risk identification and assessment aligns with the theoretical perspective that risk management constitutes the backbone of effective auditing systems and directly influences organizational performance and decision-making quality (Mogharrab et al., 2021; Shams & Rahimpour, 2022).

Furthermore, the results revealed that the core phenomenon of continuous auditing significantly influences

the development and implementation of strategic responses, highlighting the central role of continuous auditing in shaping managerial, technological, and structural strategies within banks. This finding underscores the dynamic nature of continuous auditing as not merely a monitoring tool but as a strategic enabler that informs organizational actions and responses to emerging risks. This is in line with studies demonstrating that continuous auditing provides real-time insights that enhance the planning and execution of risk-based internal audits, thereby improving organizational agility and responsiveness (Polizzi & Scannella, 2023; Sajjadi & Hooshmand Kashani, 2024). Additionally, the strong relationship between continuous auditing and strategic responses reflects the importance of integrating auditing systems with organizational strategy to achieve sustainable risk management outcomes, as supported by research on structured process redesign and performance optimization in complex organizations (Mukherjee et al., 2021).

The significant relationships observed between contextual conditions and strategic responses further highlight the importance of organizational infrastructure, human resource capabilities, and cultural readiness in facilitating the successful implementation of continuous auditing systems. The findings suggest that the availability of advanced technological infrastructure, combined with skilled personnel and a supportive organizational culture, plays a crucial role in enabling effective auditing and risk management practices. This result is consistent with prior studies indicating that technological capabilities and human capital are key determinants of successful risk management implementation in banking and other industries (Asgarnezhad Nouri et al., 2022; Shirbandi et al., 2023). Moreover, the role of organizational culture, particularly in terms of resistance to change and adaptability, aligns with research emphasizing the influence of cultural and behavioral factors on audit quality and effectiveness (Ramezani et al., 2022).

The study also identified a significant impact of intervening conditions on strategic responses, indicating that factors such as system complexity, rapid technological changes, data-related challenges, security concerns, and cost considerations can either facilitate or hinder the implementation of continuous auditing. These findings highlight the multifaceted nature of challenges associated with digital transformation in auditing and risk management. In particular, the complexity of integrating various financial and operational systems and the need for robust data management capabilities are consistent with the challenges identified in previous research on continuous auditing implementation (Polizzi & Scannella, 2023). Additionally, issues related to data quality and security emphasize the growing importance of governance mechanisms and regulatory compliance in ensuring the reliability and integrity of auditing processes, as supported by studies on internal controls and financial reporting quality (Ezzati Jadidi, 2022; Mortazavi & Shokrkhah, 2022).

Another important finding of the study is the strong and significant relationship between strategic responses and organizational outcomes, indicating that the effective implementation of managerial, technological, and structural strategies leads to improved risk management and enhanced managerial development within banks. This result underscores the practical implications of the proposed model, demonstrating that strategic alignment and coordinated actions are essential for achieving desired organizational outcomes. The positive impact of strategic responses on outcomes is consistent with research highlighting the role of comprehensive risk management frameworks in enhancing organizational performance and reducing financial instability (Beikzadeh Abbasi, 2024; Khodabakhshi Gorgani et al., 2022). Furthermore, the link between strategic actions and outcomes reflects the importance of aligning risk management practices with organizational objectives, as evidenced in studies examining the relationship between business strategies, risk management, and firm performance (Rabiei & Fotouhi Fashtami, 2025; Vaghfi et al., 2022).

In addition to these relationships, the measurement and structural model assessments confirmed the reliability and validity of the proposed model, as indicated by acceptable levels of Cronbach's alpha, composite reliability, and average variance extracted (AVE), as well as strong model fit indices including R^2, Q^2, and GOF. These results provide empirical support for the robustness of the model and its applicability in the context of Iranian commercial banks. The strong goodness-of-fit value indicates that the model effectively captures the complex interactions among the various dimensions of continuous auditing and risk management. This finding is in line with prior research emphasizing the importance of using advanced analytical techniques, such as structural equation modeling, to validate complex theoretical frameworks in management studies (Bayati et al., 2024; Manafi Sharafabad, 2022).

Overall, the findings of this study contribute to the existing literature by providing a comprehensive and

integrated framework for understanding the role of continuous auditing in risk management. Unlike previous studies that have focused on isolated aspects of auditing or risk management, this research offers a holistic perspective that considers the interplay of multiple factors influencing the effectiveness of continuous auditing systems. The integration of causal, contextual, and intervening factors with strategic responses and outcomes provides a nuanced understanding of how continuous auditing can be effectively implemented to enhance risk management in banking institutions. This contribution is particularly significant in the context of emerging economies, where banking systems face unique challenges related to regulatory constraints, technological limitations, and organizational complexities (Sadati Tilehboni et al., 2022; Vakilzadeh Rouhalamini et al., 2024).

5 Conclusion

The study reinforces the theoretical foundations of risk management and auditing by demonstrating the importance of adopting a systemic and process-oriented approach to managing organizational risks. The findings highlight that continuous auditing should not be viewed as a standalone function but as an integral component of the broader risk management framework. This perspective aligns with contemporary views on enterprise risk management, which emphasize the need for integrated and coordinated approaches to managing risks across different organizational levels (Pourahmadi & Farsad Amanollahi, 2021). Moreover, the emphasis on continuous monitoring and real-time data analysis reflects the growing importance of digital technologies in transforming traditional auditing practices and enhancing organizational resilience in the face of uncertainty.

Despite its contributions, the present study has several limitations that should be acknowledged. First, the study was conducted within the context of Iranian commercial banks, which may limit the generalizability of the findings to other industries or geographical regions. Second, the use of a cross-sectional research design restricts the ability to capture dynamic changes and long-term effects of continuous auditing implementation. Third, the reliance on self-reported data may introduce potential biases, such as social desirability bias or response bias. Additionally, while the mixed-methods approach provides a comprehensive understanding of the research problem, the integration of qualitative and quantitative findings may still be subject to interpretive limitations.

Future studies could expand the scope of this research by examining the applicability of the proposed model in different industries and cultural contexts to enhance its generalizability. Longitudinal studies are recommended to investigate the long-term impacts of continuous auditing on organizational performance and risk management effectiveness. Researchers may also explore the role of emerging technologies, such as artificial intelligence and big data analytics, in enhancing continuous auditing systems. Furthermore, comparative studies between different banking systems or regulatory environments could provide valuable insights into the contextual factors influencing the effectiveness of continuous auditing.

From a practical perspective, banking institutions should prioritize the development of robust technological infrastructures and invest in advanced auditing tools to support continuous monitoring and risk assessment. Enhancing employee skills through targeted training programs and fostering a culture that embraces innovation and change are essential for successful implementation. Managers should also focus on integrating continuous auditing practices with organizational strategies to ensure alignment with business objectives. Additionally, policymakers and regulators should provide clear guidelines and support mechanisms to facilitate the adoption of continuous auditing systems and promote best practices in risk management across the banking sector.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethical Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.

References

Asgarnezhad Nouri, B., Zarei, G., & Beigi Firouzi, A. (2022). The impact of risk management on new product development in the banking industry. *Quarterly Journal of Public Management Research*, *15*(58), 289-316.

Attaf, W. F., & Bensbahou, A. (2025). The impact of risk-based internal audit approach on improving risk management processes: A field study in Yemeni Islamic banks (Aden). *Journal of Management World*, *1*, 180-190. https://doi.org/10.53935/jomw.v2024i4.634

Bayati, G., Mohammadpour Zarandi, M. E., Kordlouie, H. R., & Fadavi, A. (2024). Designing a mathematical algorithm for optimizing banks' foreign exchange asset portfolios based on fuzzy logic and related risk indicators (Case study: Bank Mellat). *Investment Knowledge*, *13*(50), 39-72.

Beikzadeh Abbasi, F. (2024). Comprehensive risk management model (Case study: Pharmaceutical industry). *Investment Knowledge*, *13*(50), 73-93.

Ezzati Jadidi, M. (2022). Investigating the short-term and long-term impact of internal controls and risk management on cash assets of selected companies listed on the Tehran Stock Exchange. Civilica.

Khodabakhshi Gorgani, F., Ziaei, M., Taghavifard, M. T., & Torkestani, M. S. (2022). A model for risk management in the hotel industry. *Quarterly Journal of Tourism Management Studies*, *17*(57), 39-71.

Manafi Sharafabad, G. (2022). Presenting a theoretical framework for project risk management plan. *Journal of Science and Engineering Elites*, *7*(3).

Mogharrab, A., Gerami, A., & Mousavi, Z. S. (2021). The concept of risk and its application in the capital market. 9th International Conference on Management and Humanities Research in Iran, Tehran, Iran.

Mortazavi, S. M., & Shokrkhah, J. (2022). Identifying the weaknesses of the internal control system of Iranian banks. *Journal of Financial Accounting Research*, *14*(1), 81-108.

Mukherjee, K. K., Reka, L., Mullahi, R., Jani, K., & Taraj, J. (2021). Public services: A standard process model following a structured process redesign. *Business Process Management Journal*, *27*(3), 796-835. https://doi.org/10.1108/BPMJ-03-2020-0107

Omidvari, R. (2021). Investigating risk-based internal auditing and internal audit involvement in enterprise risk management: A case study of companies listed on the Tehran Stock Exchange. *Quarterly Journal of Modern Research Approaches in Economic Management (Sustainable Growth and Development)*, *16*(3), 47-66.

Polizzi, S., & Scannella, E. (2023). Continuous auditing in public sector and central banks: A framework to tackle implementation challenges. *Journal of Financial Regulation and Compliance*, *31*(1), 40-59. https://doi.org/10.1108/JFRC-02-2022-0011

Pourahmadi, M. H., & Farsad Amanollahi, G. (2021). The effect of enterprise risk management on the relationship between external financing and earnings management. *Quarterly Journal of Financial Accounting and Auditing Research*, *13*(49), 73-95.

Rabiei, K., & Fotouhi Fashtami, H. (2025). Investigating the Nonlinear Impact of Earnings Management and Business Strategy on Corporate Bankruptcy Risk Using the Generalized Method of Moments (GMM). *Management Accounting and Auditing Knowledge*, *14*(56), 183-192. https://www.jmaak.ir/article_23510.html?lang=en

Ramezani, H. R., Azinfar, K., Gholamnia Roshan, H. R., & Fallah, R. (2022). The role of Islamic culture and auditor experience in the relationship between mutual fairness and audit quality in the environmental conditions of Iran. Civilica.

Sadati Tilehboni, S. V., Zabihi, A., & Khalili, Y. (2022). Investigating the effect of unsystematic risk on earnings management. *Quarterly Journal of Accounting and Auditing Research*, *53*, 175-190.

Sajjadi, S. H., & Hooshmand Kashani, A. (2024). Using continuous auditing information in risk-based internal audit planning: A survey of internal audit managers and experts. *Professional Auditing Research*, *5*(17), 114-143. https://doi.org/10.22034/jpar.2024.2034562.1329

Shams, E., & Rahimpour, M. (2022). The role of risk management and its evaluation in the performance of insurance companies. 14th National Conference on Economics, Management and Accounting, Shirvan, North Khorasan, Iran.

Shirbandi, H., Khalvati, S., & Farmani, A. (2023). The impact of liquidity flow risk management on financial stability. *Shabak Specialized Scientific Journal*, *9*(1), 141-154.

Vaghfi, S. H., Hosseini, S. E., & Keshvari, F. (2022). The effect of cost leadership and differentiation strategies on firm risk emphasizing the role of risk management and intellectual capital. *Commercial Research Quarterly*, *104*, 157-180.

Vakilzadeh Rouhalamini, M., Azadi, K., & Mohammadi Nodeh, F. (2024). Evaluating the factors affecting audit risk based on factor analysis approach. *Management Accounting and Auditing Knowledge*, *15*(58), 197-216.