

A performance audit model in state-owned banks: A mixed approach

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Abstract

Performance audits are essential for optimising banking industry resources in Iran's state economy, causing constant pressure on the public sector to be more efficient, reduce costs, and decentralize decision-making. On the other hand, the pressure on the Supreme Audit Court to report the cases of waste and misuse of government funds, improper management, and inadequacy of controls and procedures is increasing. This exploratory mixed study provided a performance audit model in state-owned banks using a mixed approach. Grounded Theory was used to collect data by conducting semi-structured interviews with 20 experts in the desired subject area, who were selected using non-probability, purposive, and snowball methods. A qualitative model was presented using Strauss and Corbin's systematic approach after conducting interviews and collecting information. During the coding process, 119 initial codes were identified (53 open codes (concepts) and 15 categories). The final model was formed from the central category, causal conditions, intervening conditions, strategies, and consequences of the successful implementation of the performance audit in the banking industry. The fit of the proposed model was then assessed using confirmatory factor analysis. This study was conducted on 140 consultants, assistants and auditors, accountants, and experts of the Ministry of Economic Affairs and Finance, internal audit managers of branches under the supervision of state-owned banks in Bushehr province, Iran, and operational audit managers and supervisors of the audit organization, who were selected by a two-stage cluster sampling method. Confirmatory factor analysis showed that the proposed performance audit model is useful.

Keywords: performance audit model, banking industry, mixed exploratory approach, grounded theory, confirmatory factor analysis

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1 Introduction

Performance audits in developing countries were proposed in the 1980s after facing financial helplessness, low financial performance of the public sector, and lack of accountability in these sectors [2]. In recent years, various countries have made essential changes in the structure of their accounting court, the primary purpose of which is to provide the possibility of performance audits [24].

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The economy of the Islamic Republic of Iran is a state economy, and performance audit is essential for the optimal management of the resources of this sector [12], which caused constant pressure on the public sector to be more efficient, reduce costs, and decentralize decision-making. At the same time, pressure on the country's Supreme Audit Court to report cases of waste and misuse of government funds, improper management, and inadequacy of controls and procedures is also increasing [37, 38]. According to Article 218 of the 5th National Development Plan Law, all government companies are subject to Article 41 of the State Service Management Law, whose list is determined by the government. The companies admitted to the stock exchange are also obliged to audit financial reports from the second year and at least once until the end of the program through auditors, as the case may be, to increase the economic efficiency and effectiveness of the companies' activities and increase the reliability of financial reports [34]. Articles 1, 6, and 42 of the country's Supreme Audit Court Law can be considered an indirect reference to a performance audit. For example, Article 1 of the law of the Supreme Audit Court of the country, to protect the treasury, has pointed out the necessity of applying continuous financial control and supervision over the performance of public budget user devices [27]. According to the text of Article 55 of the Constitution and the detailed discussion of the Parliament's final review of the Constitution, there is no doubt that the purpose of the audit in the Constitution is to audit compliance with laws and regulations and review financial statements [42].

The administration of public affairs in the Islamic Republic of Iran system is changing from its traditional form to a new form, which is voluntary and self-solicited in some matters. The transformation in managing public affairs in legal systems with the rule of institutional law requires a change of attitude in public financial management based on the transformation in different dimensions of the legal system. The requirements of modern government management have caused the government's budgeting process to face profound changes in all four stages of budget preparation, approval, implementation, and monitoring. Paying attention to "result" instead of "process" is one of the main components of modern government management. On this basis, the performance audit as the primary tool of this budgeting stage has replaced the traditional types of audits in monitoring the budget implementation [42]. According to the booming global experience of both developed and developing countries, performance audits and their benefits were used, and the constructive role of performance audits in improving the state of government organizations was considered. Theoretical evidence indicates that this type of audit in Iran's public and government sector has not grown and developed enough compared to the leading countries. On the other hand, studies have shown that the Islamic Republic of Iran's Supreme Audit Court faces major obstacles and challenges in performing performance audits in executive bodies [15].

Financial and economic information is the main basis for most decisions of organizations, and the more financial systems have higher capabilities, the more ground is provided for efficient management [20]. Therefore, the country's Supreme Audit Court's success requires identifying and studying the key factors of performance audit success [29]. Effectiveness and economic efficiency are among the major challenges of performance auditing, defining, and measuring performance criteria. Therefore, it is necessary to reach a final agreement on the compiled criteria to obtain sufficient evidence about the performance of the audited unit [19].

Throughout the world, banks are considered critical pillars of a country's economy and play a decisive role in economic development and growth due to their provision of diverse financial and credit services (both micro and macro). Banks can create an ideal environment for economic growth when they function effectively. Thus, a country's economic development significantly depends on the efficiency and effectiveness of its banking performance. Banking holds a greater significance in Iran's economy, as the underdeveloped capital market necessitates banks to undertake long-term financing. In addition, efficiency is a requisite in liberalizing financial markets and integrating with global markets.

Designing a model for performance auditing in banks and enabling the analysis and assessment of various performance aspects, including financial and organizational performance, are among the crucial operational mechanisms less considered in Iran. It is essential to seriously evaluate bank performance to achieve the objectives in the vision document of the Islamic Republic of Iran's banking industry. Given the significant role of banks and the importance of performance auditing, this study aims to develop a model for performance auditing in state-owned banks. Therefore, the questions focus on the model of performance auditing in state-owned banks based on grounded theory and the validation of the performance auditing model in state-owned banks using confirmatory factor analysis.

2 Theoretical foundations and research background

Money facilitates transactions, and the bank is one of the most important institutions involved in creating, distributing, and regulating money and credit. It also manages the government's monetary policies. Money and banks form part of a larger financial system and are components of society's economy. On the other hand, one of the most

crucial issues facing managers is the performance evaluation of units under their management. Threats and pressures from globalization and the growing number of non-bank financial and credit institutions in recent years have led banks to improve their performance to survive and compete in the market. In this context, a logical and very effective solution that can determine banks' overall performance status is the performance evaluation process.

Performance auditing plays a vital role in organizational management and the proper implementation of government policies. Increasing public awareness and the growing demand for accountability regarding managing government resources have led to a severe approach to performance auditing in the public sector. Performance auditing, which refers to the optimal use of resources based on three criteria: economy, efficiency, and effectiveness, can help managers of executive agencies through auditing findings and suggestions, creating an environment for responsibility, accountability, and productivity enhancement. Therefore, it can be said that performance auditing has extended the scope of auditing beyond financial audits, considerably increasing the subject matter, the scope of auditors' comments, and recommendations.

The audit system is one of the active sub-systems in the accountability system, which plays an essential role in evaluating the accountability of public sector institutions. Performance audit, as a part of the comprehensive audit system, uses modern methods to evaluate the efficiency, effectiveness, and economic efficiency of public and functional financial resources of executive bodies and plays a role in evaluating the levels of accountability [4]. In addition, performance auditing has been recognized as a more flexible structure than financial auditing, and for public sector auditors, it is a complex set that entails more judgment. As a result, auditors are repeatedly and aggressively exposed to criticism from public sector organizations [11].

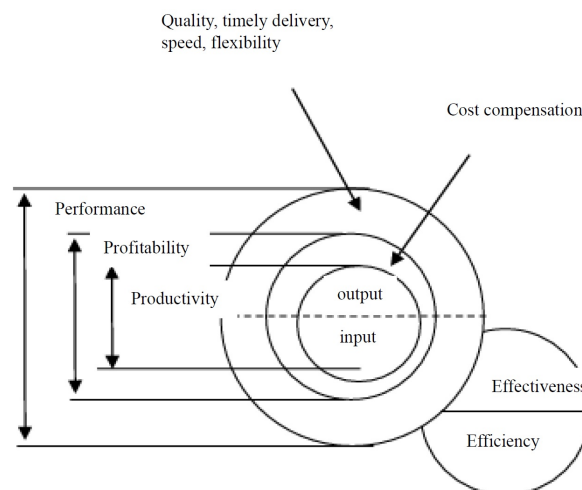


Figure 1: Relationship between productivity, profitability, effectiveness, efficiency, and performance

Performance audits based on the three main components of "efficiency," "effectiveness," and "economy" have a history of more than a century in advanced budgeting systems such as the United States. However, it is like a child whose full realization requires a foundation in various legal, managerial, political, etc. fields in Iran's budgeting system. The performance audit will not be able to be realized without these contexts, and the effort to implement it regardless of the appropriate legal framework leads to the violation of the principle of the rule of law as the most irreplaceable principle of modern political systems [42]. Environment, social justice, and ethics have also been added along with the three components of "efficiency," "effectiveness," and "economic efficiency" [39].

The audit or review of all income and expense accounts, receipts, payments, and financial statements of agencies, in terms of compliance with financial laws and regulations, other relevant laws, and mandatory rules, encompasses ministries, institutions, state-owned companies, and other units utilizing the national budget in any form, which includes any executive unit publicly owned according to Articles 44 and 45 of the Constitution or units specifically named under general regulations as one of the duties and authorities of the country's Supreme Audit Court. The Supreme Audit Court is a government institution financially and administratively independent and operates under the supervision of the Islamic Consultative Assembly as its oversight arm. The court audits all accounts of ministries, institutions, state-owned companies, and other agencies using the national budget in a manner prescribed by law, ensuring that no expense exceeds approved credits and that every amount is used appropriately. The Supreme Audit Court collects accounts and related documents according to the law and submits an annual budget settlement report and its supervision to the Islamic Consultative Assembly [32].

With the evolution of the modern state and the development of its fundamental components, such as the rule of law, constitutionalism, separation of powers, respect for human rights, and public freedoms, the financial accountability of the government to citizens and their representatives in parliament has been accepted as a crucial principle in democratic and people-centric political systems. Specifically, the financial conditions of central governments in Western countries have deteriorated since the 1980s due to declining economic growth rates and increasing citizens' sensitivity to public funds. Consequently, governments were compelled to allocate and spend public resources more reasonably and efficiently, and public budgeting processes underwent significant changes [42].

Performance auditing in Iran began in 2009 by the Supreme Audit Court, with the development of a performance auditing guide [3]. Performance auditing extends beyond financial audits, significantly expanding the scope of review, the range of audit opinions, and recommendations [10]. The mission of performance auditing is not separate from financial auditing and compliance to understand accounting, accountability, and responsiveness that studies the efficiency and effectiveness of policies and strategies. This type of auditing is a cornerstone of good financial governance. Performance auditing is a multidisciplinary concept, not purely financial, and thus possesses suitable capacities and tools for evaluating, measuring, and improving the government's performance at the higher levels of enterprises and executive agencies [41].

Different approaches to performance auditing depend on the nature of the activities, tasks, operations, plans, programs, organizations, or topics selected for performance auditing. Operational auditors can complete their work by examining the documents and documents kept by the employer or negotiating with the selected people in the unit under investigation. Performance auditors tend to review the unit's service obligations and interview the target group's customers. Operational auditors provide the necessary assurance to the unit managers about their audit approaches and use their help to provide better access to input and output information, documents, and people needed to complete the performance audit [30]. In general, the performance audit uses three approaches to examine the performance of the audited unit, which may be based on the results in which goals defined in advance and implemented are evaluated. Another approach is the problem-based approach, in which the causes of the problem or specific issues are examined. The third system-based approach is whether the management systems have performed their tasks optimally or not. Auditing can be done based on these three approaches [9].

Gard and Momeni [12] investigated the factors affecting the performance audit's success in the country's Supreme Audit Court with a fuzzy approach. The findings showed 26 factors affecting the performance audit's success in the country's Supreme Audit Court. The country's Supreme Audit Court, as the country's highest financial regulatory authority, should take steps to improve this type of audit, considering the factors affecting the success of the performance audit. Kamyabi et al. [19] explained the performance audit components in Iran's public sector, emphasizing environmental and social performance. The results showed that the physical and financial amounts of input, time allocated and scheduling, productivity, cost, operational ratios, level and quantity of outputs, the timeliness of achieving the outputs and the degree of achieving the mission and goals, the ability to make a profit, the excess of benefits over the expenses and the satisfaction of the stakeholders are among the key factors that should be considered in the performance audit. Mahmoudkhani and Ahmadi [23] did a performance audit emphasizing the public sector. The result indicated that the main challenge of performance audits is the lack of knowledge and correct insight into this type of audit in the public sector. Babajani and Doustjabarian [4] discussed a model for establishing a performance audit system in public sector institutions in Iran. The findings revealed that behavioral, structural, and background factors are influential factors in establishing the performance audit system in Iran. Lari Dasht Bayaz et al. [21] studied the factors that effectively determine performance audit criteria in executive bodies. The results showed that the essential factors in determining performance audit criteria are implementing the operational budgeting system, accrual accounting in the government sector, and necessary laws and regulations in implementing and compiling the theoretical framework of government accounting.

Parker et al. [29] assessed Modern Public Management and the Rise of Performance Auditing in the Public Sector in Australia by interview method. The findings showed that the growth rate differed in different periods, although the performance audit has grown in all periods. In addition, the performance audit improved the relationship between the supervisory institutions and the parliament. Weihrich [40] examined the performance audit implementation from an environmental perspective. The findings showed that efficiency and effectiveness are more important than economic efficiency in German government agencies because these two components cause economic efficiency. [31] evaluated the performance audit as a way to change and improve public administration. The findings showed that the performance audit had positive consequences, such as documenting and increasing reporting, changing planning and management strategies, improving internal control and risk management, changing coordination procedures, changing employee training, and growing audit findings. Loke et al. [22] studied the necessity and importance of performance audits in the Malaysian public sector. The results showed that the effectiveness component, as the most effective pillar of per-

formance audit, can play a significant role in institutionalizing performance audits in the public sector. Strengthening the sense of responsibility and work conscience are influential factors in implementing performance audits. Nalewaik and Mills [25] conducted a research titled Project Performance Audit. The key success factors of the project performance audit were the variables of comprehensive quality management, efficiency, effectiveness, economic efficiency, data, results, risk, beneficiaries, project life cycle, and the accuracy of project status reporting.

3 Method

This applied, cross-sectional, and exploratory mixed study aimed to provide a performance audit model to develop practical knowledge in which qualitative and quantitative methods were conducted in 2020-2021. The qualitative model used the grounded theory of Strauss and Corbin [35] to provide a paradigm model by discovering the central and subcategories of performance audits and identifying the relationship of these categories. The confirmatory factor analysis technique was used to check the fit of the proposed qualitative model.

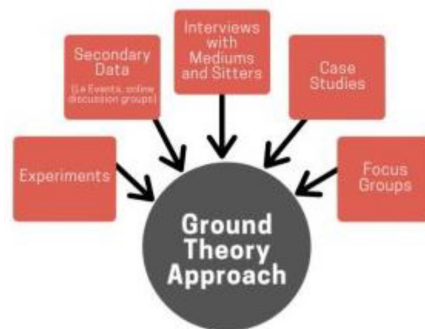


Figure 2: Stages of grounded theory

Grounded theory is one of the research strategies with an interpretative paradigm through which theory is formed based on the main concepts derived from the data [7]. The purpose of Grounded research is to build a theory that can be tested, expanded, and generalized [33], which was developed by Strauss and Corbin in 1967 based on the collection, continuous comparison of data, and the formation of concepts at the same time [35]. The general structure of the Grounded theory is given in Diagram 1:

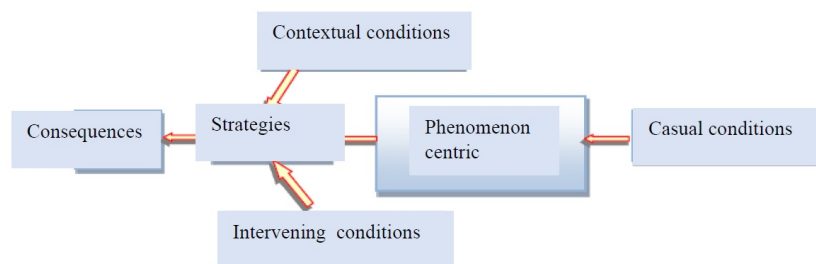


Diagram 1: Paradigm model [26]

According to Strauss and Corbin, qualitative data analysis for theorizing requires the use of open coding, axial coding, and selective coding. In open coding, data interpretation and information analysis are done to classify the data into specific categories. In axial coding, the researcher selects a concept from the set of concepts of the open coding stage as a category. During Freudian, he associates other concepts with meaning, and selective coding is the main stage of theorizing. Based on the results of the previous two stages, a theory and model are presented [35]. In grounded theory, the analysis starts from the data source until theoretical saturation is reached [5]. The ultimate goal of this theory is to provide comprehensive theoretical explanations about a particular phenomenon. This theory is designed as a precise and systematic approach to examine people and their experiences about a social issue. Accordingly, researchers can defend and explain it after conducting the research and achieving its results [26].

Semi-structured interviews were used to collect data in this research among all the executive experts aware of performance auditing and professors with a scientific background related to performance auditing. The sampling method is theoretical sampling using non-probability purposive and snowball methods.

In theoretical sampling in grounded research, the exact number of samples is not known in advance and is done in the research field. The sampling continues until the theoretical saturation stage and stops [13, 28].

The level of theoretical saturation is generally reached when, with more sampling, no new information is obtained, and new relationships do not appear for the researcher. The data analysis reached theoretical saturation in the present study after conducting 20 semi-structured interviews. A total of 14 of the interviewees had a PhD degree with 10 to 20 years of work experience, and six others had a master's degree with 15 to 25 years of work experience. Note-taking and audio recording were used to record the opinions and answers of the interviewees.

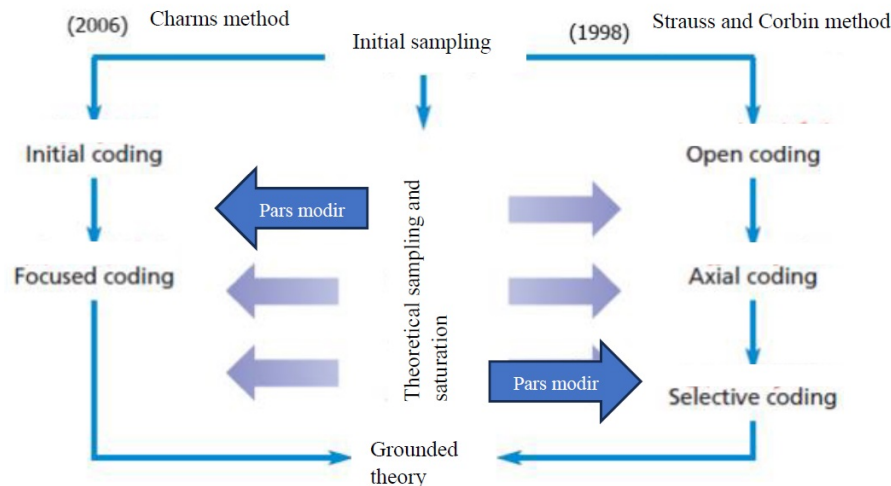


Figure 3: Theoretical sampling in grounded theory

Some qualitative researchers consider the discussion about the validity and reliability of data and research results traditionally related to quantitative research [18]. However, the accuracy and validity of data and findings are essential parts of qualitative research [6]. Researchers believe that quantitative validation tools and methods should replace them by creating new methods and concepts of credit evaluation in the qualitative field. For this purpose, these researchers introduce the following indicators [1]: 1) Credibility refers to the authenticity of the descriptions and research findings [17]. Long and continuous observation was placed on the researcher's agenda to ensure the validity of this research. The data collection process took place in different phases, and some participants were present in at least two phases due to their specialized knowledge and interest in the research topic. The researcher had more time to build a relationship with them to receive corrective feedback from the participants by providing data analysis. 2) Transferability: It means the ability to generalize the results to other areas and fields because most of the qualitative research is conducted in small groups, and generalizing the results in this field is a bit difficult [17].

This research employed purposive and snowball sampling methods to ensure the richness and comprehensiveness of the data. Thus, at the end of each interview, suitable individuals with deep knowledge about the discussed subjects were identified to continue the data collection process. 3) Confirmability refers to the effort to achieve objectivity in research. In quantitative research, confirmability mainly focuses on the researcher's avoidance of bias; conversely, in qualitative research, it pertains to the analytical power, accuracy of the data, and the extent of their verification [17]. Simultaneous data collection and analysis (the process of continuous comparative coding) were utilized throughout the study to ensure the confirmability of this research. For this purpose, the researcher systematically recorded all raw data, including significant document points, recorded interviews, and their thoughts and analyses to enable revisiting and reviewing them at any moment. 4) Dependability: Equivalent to reliability in quantitative methods. Ensuring reliability in qualitative research and testing its reliability is crucial. Dependability refers to the degree of data's reproducibility and repeatability by other individuals [17]. In the current research, an advisory committee was also used to evaluate and implement the interview program, besides organizing structured processes for recording, writing, and interpreting data.

In the quantitative section, the research population includes advisors, deputies, and auditors working at the Supreme Audit Court of the country, accountants and experts of the Ministry of Economic Affairs and Finance, internal audit managers of the Housing Bank of Bushehr, and managers and supervisors of operational auditing of the Audit Organization. Considering the size of the research population, sampling was done through a two-stage cluster method. As various institutions are present in the public sector, cluster sampling has the advantage of including

representatives from each institution in the statistical sample.

Cluster sampling is a simple random sampling where each sampling unit includes several members. Therefore, estimates of the mean and total value of the population are similar to those obtained through simple random sampling.

Information in a cluster sample is affected by two factors: the number of clusters and the relative size of the clusters. The number of clusters that should be selected by simple random method is obtained using Equation (3.1):

$$n = \frac{N\sigma_c^2}{ND + \sigma_c^2} \quad (3.1)$$

The sample size is determined by using information from previous similar samplings or with the help of a prototype and using Equation (3.2):

$$S_c^2 = \frac{1}{n-1} \sum_{i=1}^n (y_i - \bar{y}m_i)^2 \quad (3.2)$$

The minimum sample size in factor analysis according to many researchers, the minimum required sample size is 100 to 200 people [16]. Each cluster's population size is unknown [4], and thus, the distribution and variance of 30 questionnaires were calculated. Then, the sample size equal to 134 people was obtained based on the first average (that is, the formula for determining the sample size from the unlimited population). According to the importance of the clusters, several were selected from each, and 170 questionnaires were distributed, of which 140 questionnaires were returned due to the unusability of some questionnaires.

Equation (3.3): Determining the sample size from the population with an unknown size

$$n = \left(\frac{Z_{\frac{\alpha}{2}} \times \sigma_x}{\alpha} \right)^2 \rightarrow 134 = (0.05 \div (0.295 \times 1.96))^2 \quad (3.3)$$

4 Data analysis

4.1 A qualitative model of performance audit based on the grounded theory

According to Strauss and Corbin, qualitative data analysis for theorizing requires open, axial, and selective coding. Data and information analysis are conceptualized to classify data into specific categories, and concepts are brought to the surface from the depth of the data. In addition, the analyst deals with forming concepts and their characteristics. The researcher selects a concept from the set of concepts of the open coding stage as a category in the axial coding. During the process, he associates other concepts with the meaning. In other words, the theorist chooses one of the categories as the central category, then places it in the center of the process under investigation and determines the relationship of other categories with it. Different categories include antecedents, background, interventions, strategies, and consequences. This coding is called axial because it is done around the axis of a research topic. Selective coding is the main stage of theorizing, which produces a theory based on the results of the previous two stages [35].

A purposeful snowball sampling method was used to ensure the richness and comprehensiveness of the data in the present study; thus, at the end of each interview, the subsequent suitable individuals for continuing the data collection process were identified who had profound knowledge regarding the discussed topics. Confirmability refers to the effort towards achieving objectivity in research. In quantitative research, confirmability is mainly about the researcher's avoidance of bias; in contrast, in qualitative research, it is more about the analytical power and accuracy of the data and the extent to which they are validated. Concurrent data collection and analysis were utilized throughout the research to ensure the confirmability of this study (a continuous comparative coding process). For this purpose, the researcher systematically recorded all raw data, including essential notes from documents, recorded interviews, and their thoughts and analyses, to allow for revisiting and reviewing them at any moment. Reliability: equivalent to reliability in quantitative methods. Testing its trustworthiness is crucial to ensure reliability in a qualitative study. Reliability refers to the degree of other individuals' repeatability and reproducibility of data. In addition to organizing structured processes for recording, writing, and interpreting data, a guiding committee was also used to evaluate and implement the interview plan in the current research.

4.1.1 Casual conditions

In the quantitative part, the research population included counselors, deputy auditors working in the Supreme Audit Court of the country, accountants and experts of the Ministry of Economic Affairs and Finance, internal

audit managers of the Housing Bank of Bushehr, and managers and supervisors of operational auditing in the Audit Organization. Given the size of the research population, the sampling was conducted in two stages of cluster sampling. Since various entities are present in the public sector, cluster sampling can place representatives from each entity in the statistical sample.

Cluster sampling is a simple random sampling where each sampling unit includes several members. Thus, estimates of the mean and total value of the population are similar to simple random sampling.

Table 1: Categories and examples of codes in the causal conditions section

	Categories	Open codes
Casual conditions	External factors	Increasing pressure on banks to focus on performance audit
		Increasing pressure on the country's Supreme Audit Court to report cases of waste and misuse of government funds, improper management, and inadequacy of controls and procedures.
		Increasing pressure on the public sector to be more efficient, reduce costs, and decentralize decision-making
	Internal factors	Lack of transparency and accountability due to the presence of complex and ambiguous laws and regulations in the public sector
		Increasing pressure on the country's Supreme Audit Court to report cases of waste and misuse of government funds, improper management, and inadequacy of controls and procedures.
		Failure to achieve the predetermined goals and plans of the organization due to overlapping, parallel work, or neutralizing the goals of other plans.
		Increasing fraud, corruption, and financial crises in banks
		Inadequate quality of public services provided by the bank with people's expectations and intended goals
		Correct, appropriate, uniform, and non-relevance of tools (legal, financial, etc.) provided in the program

4.1.2 Background conditions or the governing platform

The ruling context provides specific conditions in which strategies to control and respond to the phenomenon occur [14]. Background conditions include factors without realizing that co-creation in the tourism industry is impossible. The interviewees gave explanations and examples in response to the questions related to the background conditions of co-creation in the tourism industry, and the extracted codes were extracted from their essential expressions.

Table 2 shows the subcategories and open codes in the contextual conditions section:

Table 2: Subcategories and sample codes in the background conditions section

	Categories	Open codes
Contextual conditions	Rules and accountability	Obligation to respond to public demands (press, reporters, etc.)
		Expediting the implementation of Article 44 of the Constitution
		Existence of rules and regulations
	Covering organizational weaknesses using performance audits	The need to act based on the new definition of performance audit (including recognition of the current and desired situation, the degree of deviation of the current situation from the desired one, the reasons for the deviation, providing corrective solutions)
		Deficiency of financial audit in terms of the scope of investigation in fully meeting audit needs
		The lack of transparency of the boundaries of responsibilities or defects in the organizational structure, decision-making process, and management system in the implementation of the program

4.1.3 Intervening conditions

Intervening conditions affect causal conditions, strategies, and mutual actions. Intervening conditions act toward facilitating or restricting the strategy in question [14]. Table 3 shows the categories and open codes in the intervention conditions section:

Table 3: Categories and examples of codes in the section on intervention conditions

	Categories	Open codes
Intervening conditions	Amending laws affecting performance audit	Amendment of the General Accounting Law
		Amending the law of the Supreme Audit Court of the country
		Amending the program and budget law
		Amendment of Civil Service Law
	Requirement of upstream institutions	Requirement of the Ministry of Economy and Finance
		Requirement of management and planning organization
		Requirement of the Accounts and Budget Committee of the Parliament

4.1.4 The centric category

The centric category in Grounded theorizing is the main field of research and connects all other categories. When the concept is improved analytically by integrating with other concepts, the theory grows in depth and power of discovery [8, 14].

Table 4 shows the categories and open codes in the centric category section:

Table 4: Categories and sample codes in the centric category section

	Categories	Open codes
centric category co-creation	Efficiency	Using human, financial, and other bank resources efficiently
		Managing, regulating, organizing, implementing, and monitoring bank activities and programs efficiently
		Using the bank's resources under the approved goals and plans
		Appropriate and timely services provided by the bank
		Providing products at a reasonable cost
	Effectiveness	Evaluating the adequacy of systems for measuring, monitoring, and reporting the program's effectiveness.
		Evaluating the effectiveness of the bank's investments and programs (ensuring the achievement of initial and final goals)
		Evaluating the economic, social, and environmental effects of bank policies
		Analyzing the reasons for the findings and the observed problems about identifying methods to make the bank's activities and programs more effective.
		Determining the relative usefulness of alternative options about the better performance of bank programs or removing obstacles to their effectiveness
	Economic efficiency	Evaluating the economic aspects of the selected methods or equipment provided by the bank
		Evaluating the amount of obtaining physical or financial and human resources of the bank by economic efficiency
		Evaluating the compliance of related activities to acquire resources with correct administrative principles and appropriate management policies

4.1.5 Strategies

Strategies express actors' interactions and actions in response to those conditions. The flow of actions occurs in response to special events and situations interacting with the phenomenon. The purpose of the strategies is to manage, accomplish, and realize the desired phenomenon better in the prevailing context, which is chosen purposefully and done for a reason. Therefore, the central phenomenon can be implemented using tactics and strategies [35]. Table 5 shows the open categories and codes in the strategies section:

Table 5: Categories and examples of codes in the strategy conditions section

	Categories	Open codes
Strategies	Improving performance audit knowledge	Holding training workshops to familiarize managers with the benefits of performance in banks to create a correct understanding and insight into performance auditing in banks.
		Using the experiences of leading countries in the field of performance audits in banks
		Creating training related to performance auditing, joint workshops with managers and specialists, and creating specialized professional organizations.
		Effective use of relevant and practical accounting and solving existing conflicts and challenges
	Make positive changes	Creating the organizational post of performance audit expert
		Development of information technology tools (creating a suitable system for collecting statistics and financial information and using appropriate financial software)
		Utilizing the capacity of the private sector in performance auditing
	Using specialized teams	Establishing specialized performance audit teams in the Supreme Audit Court
		Empowering specialized teams through international professional courses

4.1.6 Consequences and results

Strategies are made to deal with or control a phenomenon with consequences [36] and identify concepts and categories related to the consequences of co-creation strategy. Table 6 shows the categories and sample codes in the consequences and results section:

Table 6: Categories and sample codes in the consequences and results section

	Categories	Open codes
Consequences and results	Effectiveness of results	Increasing documentation and providing quality reports
		Creating an audit quality control system based on performance and assurance
		Increasing the sense of public trust and satisfaction of stakeholders due to the provision of financial transparency
	Improving bank operations	Improving government agencies' supervision and accountability, better use of resources or doing work with the same or even fewer resources, and as a result, productivity and profitability.
		Improving the management of government agencies, providing the opportunity to reduce costs and improve productivity, recognizing the organization's capabilities, and removing budget constraints.
		Improving the administration of affairs and accountability of the public sector through added value and providing suggestions for correcting deficiencies and improving systems and performance
		Accurate assessment of existing financial risks of the handling unit and creating the basis for rapid change of strategies based on compliance with long-term goals and strategies
	Effectiveness of interactions	Creating coordination among the employees of the organization
		Improving communication between regulatory bodies and the organization
		Effective communication between managers and auditors

4.1.7 Final model of performance audit in state banks using grounded Theory

A qualitative model was presented using Strauss and Corbin's systematic approach after interviews and data collection. In this regard, 119 initial codes were identified, after initial refinement, 53 open codes (concepts) and 15 categories were identified during the coding process. The final model consists of the sum of the central category, causal conditions, intervening conditions, strategies, and consequences of successfully implementing the performance audit in the banking industry.

Figure 4 presents the qualitative model of performance audit using Grounded theory:

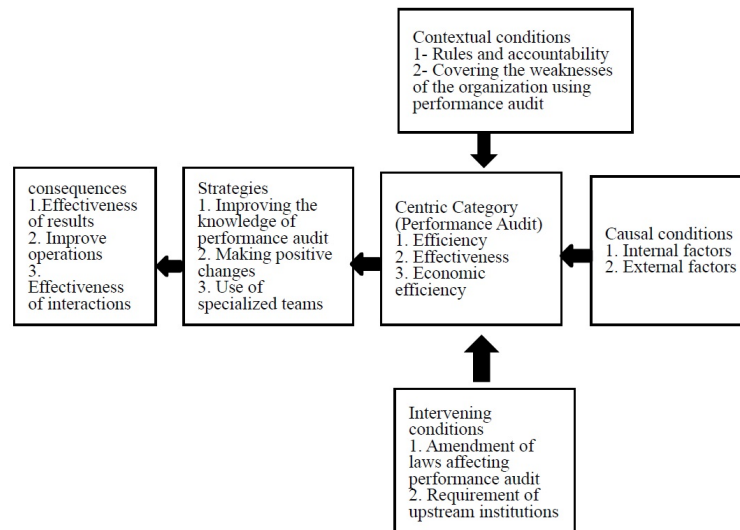


Figure 4: The final model of performance audit in state banks

4.2 Confirmatory factor analysis of the proposed model

In this section, factor analysis of the proposed model was performed using LISREL software.

For this purpose, the following six confirmatory factor analysis models were designed and implemented in LISREL software:

- Confirmatory factor analysis model of centric category indicators
- Confirmatory factor analysis model of indicators of causal conditions
- Confirmatory factor analysis model of contextual indicators
- Confirmatory factor analysis model of intervening condition indicators
- Confirmatory factor analysis model of strategy indicators
- Confirmatory factor analysis model of outcome indicators

Table 7 shows the results of the confirmatory factor analysis of the proposed performance audit model:

Table 7: Confirmatory factor analysis results (All factor loadings are significant at the 95% confidence level (outside the range of +1.96 and -1.96).)

	Categories	Open codes	Factor load	AVE	CR
Centric Category	Efficiency	Using human, financial, and other bank resources efficiently	0.90	0.662	0.906
		Managing, setting, organizing, implementing, and monitoring activities and programs...	0.65		
		Using the bank's resources by the approved goals and plans	0.91		
		Appropriate and timely services provided by the bank	0.78		
	Effectiveness	Providing products at a reasonable cost	0.80	0.625	0.892
		Evaluating the adequacy of measurement, monitoring, and...	0.83		
		Evaluating the effectiveness of the bank's investments and programs	0.79		
		Evaluating the economic, social, and environmental effects of bank policies	0.81		
		Analysis of the reasons for the findings and problems observed about...	0.84		
	Economical efficiency	Determining the relative utility of alternatives about...	0.67	0.677	0.862
		Evaluating the economic aspects of the chosen methods or...	0.73		
		Evaluating the level of obtaining the bank's physical, financial, and human resources with...	0.88		
		Evaluating the compliance of related activities to acquire resources with correct management principles	0.85		
Casual Category	External factors	Increasing pressure on banks to focus on performance audits	0.86	0.740	0.895
		Increasing pressure on the country's Supreme Audit Court to...	0.84		
		Increasing pressure on the public sector for more efficiency, reducing...	0.88		
	Internal factors	Lack of transparency and accountability due to complex rules and regulations and...	0.84	0.657	0.905
		Non-fulfillment of the predetermined goals and plans of the organization due to...	0.82		
		Increasing fraud, corruption, and financial crises in banks	0.81		
		The quality of public services provided by the bank does not match the expectations...	0.82		
		Correct, appropriate, uniform, and irrelevant tools...	0.76		
Contextual Category	Rules and accountability	Obligation to respond to public demands (press, reporters, etc.)	0.75	0.632	0.837
		Expediting the implementation of Article 44 of the Constitution	0.87		
		Terms and Conditions	0.76		
	Covering organizational weaknesses using performance audits	The need to act based on the new definition of performance audit	0.81	0.616	0.827
		Deficiency of financial audit in terms of scope of investigation in meeting...	0.82		
		The lack of transparency of the boundaries of responsibilities or defects in...	0.72		
Intervening Category	Amending laws affecting performance audit	Amendment of the General Accounting Law	0.75	0.659	0.884
		Amending the law of the Supreme Audit Court of the country	0.70		
		Amending the program and budget law	0.88		
		Amendment of Civil Service Law	0.90		
	Requirement of upstream institutions	Requirement of the Ministry of Economy and Finance	0.93	0.690	0.869
		Requirement of management and planning organization	0.80		
		Requirement of the Accounts and Budget Committee of the Parliament	0.86		

Strategies	Improving performance audit knowledge	Holding training workshops to familiarize managers with...	0.74	0.464	0.721
		Using the experiences of leading countries in the field of performance audit...	0.66		
		Creating training related to performance auditing and workshops...	0.64		
	Positive changes	Effective use of relevant and practical accounting and resolution of conflicts and...	0.75	0.641	0.843
		Creating the organizational post of performance audit expert	0.83		
		Development of information technology tools	0.82		
	Using specialized teams	Utilizing the capacity of the private sector in performance auditing	0.73	0.608	0.822
		Establishing specialized performance audit teams in the Supreme Audit Court	0.73		
		Empowering a specialized team through international professional courses	0.87		
	Consequences	Effectiveness of results	Increasing documentation and providing quality reports	0.94	0.565
Audit quality control system based on performance and...			0.59		
Increasing the sense of public trust and satisfaction of stakeholders due to...			0.68		
Improving bank operations		Improving the supervision of government agencies and improving accountability, using...	0.77	0.581	0.847
		Improving the management of government agencies, providing the opportunity to reduce...	0.83		
		Improving the administration and accountability of the public sector through added value and...	0.78		
		Accurate assessment of the existing financial risks of the handling unit and creating...	0.66		
		Coordination between employees of the organization	0.61		
Effectiveness of interactions		Improving communication between regulatory bodies and the organization	0.78	0.495	0.744
		Effective communication between managers and auditors	0.71		

According to Table 7, factor loadings of all sub-indices (open codes) are greater than 0.5 and significant. On the other hand, the composite reliability value is greater than 0.7, indicating the proposed model's appropriate reliability. The factor loadings of the sub-indexes (open codes) in all six models are higher than 0.5 and significant. Also, the value of the extracted average variance index is more significant than 0.5. Therefore, construct-convergent validity is confirmed for all six models. Equation (4.1) should be used for averaging.

$$\bar{x} = \frac{x_1 + x_2 + x_3 + \dots + x_n}{n} \quad (4.1)$$

Some essential indicators are CFI, NNFI, NFI, AGFI, GFI, and RMR. Although there are many indicators to fit the structural model, mentioning five to eight indicators in the research report is sufficient. The fit indices' acceptance range is presented in the table below.

Table 8: Acceptance range of each of the fit indices

Fit index	χ^2/df	SRMR	RMSEA	GFI	AGFI	NFI	NNFI	IFI
Scope of acceptance	1-5	> 0.05	0.05 >	> 0.9	0.9 >	0.9 >	0.9 >	0-1

Table 9 shows the fit indices related to confirmatory factor analysis models:

Table 9: Fit indices of confirmatory factor analysis models

Model	GFI	NFI	IFI	CFI	RMSEA	χ^2/df	p value
Central category	0.95	0.97	1	1	0.008	1.01	0.456
Causal conditions	0.98	0.99	1	1	0.014	1.03	0.421
Contextual conditions	0.97	0.98	0.99	0.99	0.059	1.48	0.160
Intervening conditions	0.97	0.98	0.99	0.99	0.053	1.40	0.166
Strategies	0.96	0.97	1	1	0.032	1.15	0.290
Consequences	0.96	0.98	1	1	0.029	1.11	0.314
Acceptable value	0.9 ≥	≥ 0.9	≥ 0.9	≥ 0.9	> 0.08	3 >	> 0.5

To analyze the data in the present study, based on Strauss and Corbin's systematic method, each interview was carefully examined sentence by sentence after transcribing, and the main message or key concept hidden in each phrase was extracted. After each interview, the initial codes were refined and placed under a more comprehensive concept

based on their similarity and compatibility with other discovered codes. This process was repeated numerous times until, after repeated refinements, the initial codes were organized into concepts, and the concepts were organized into broader categories as organizing themes. After analyzing all interviews, 53 initial codes were identified in this research, categorized into 15 themes and six main categories. The data analysis, based on the paradigm model coding dimensions, was elucidated, and ultimately, the theory (the qualitative model of the research) was stated.

Given the acceptable values of the fit indices listed in Table 4, it can be said that all six confirmatory factor analysis models have suitable fit.

5 Discussion and conclusion

Achieving efficient, effective, and economically viable operations is the primary responsibility of the management of any organization. The efficiency and effectiveness of any organization's management mean the ability of its managers how to prepare, develop, allocate, maintain, and employ available resources, and performance auditing is one of the tools that can help enhance planning and control of operations and offer methods for their advancement and performance improvement.

Despite the successful global experience of developed and developing countries in employing performance auditing and its benefits. Also, regarding the constructive role that performance auditing can play in improving the situation of government organizations, current theoretical evidence suggests that this type of auditing in Iran's public and government sector is not sufficiently developed compared to leading countries. On the other hand, the research results and the researcher's practical experiences indicate that the Supreme Audit Court of the Islamic Republic of Iran faces fundamental obstacles and challenges in implementing performance auditing in executive agencies.

Causes such as "increased pressure on banks to focus on performance auditing, increased pressure on the Supreme Audit Court of the country for reporting cases of waste and misuse of government funds, poor management and insufficiency of controls and procedures, increased pressure on the public sector for greater efficiency, cost reduction, and decentralization in decision-making, lack of transparency and accountability due to complex and ambiguous laws and regulations in the public sector, failure to achieve predetermined organizational goals due to overlap, duplication of work or nullification of the goals of other programs, increased fraud, corruptions, and financial crises in banks, the disparity between the quality of public services provided by banks with people's expectations and the ultimate correct, appropriate, uniform, and relevant use of tools (legal, financial, etc.) provided in the plan" makes focusing on performance auditing inevitable. The necessity of implementing performance auditing becomes more prominent when, alongside the mentioned causal conditions, contextual conditions such as "the requirement to be accountable to public demands (people, press, journalists, etc.), acceleration in the implementation of Article 44 of the Constitution, existence of laws and regulations, the need to act based on a new definition of performance auditing (including understanding the current and desired situation, the extent of deviation from the desired state, reasons for the deviation, offering corrective solutions), the inadequacy of financial auditing in terms of the scope of review in fully meeting auditing needs, and the unclear boundaries of responsibilities or flaws in organizational structure, decision-making process, and management system in program implementation" and intervening conditions such as "amendment of the Public Accounting Law, amendment of the Supreme Audit Court of the country Law, Planning and Budget Law, Civil Service Law, and the obligation of the Ministry of Economic Affairs and Finance, the Management and Planning Organization, the Parliamentary Commission on Accounts and Budget" are also considered.

Therefore, managers should pay special attention to performance audits and play their part in the country's progress by increasing the efficiency, effectiveness, and economic efficiency of the devices under their management and by empowering as much as possible new auditing methods such as auditing [10].

The model presented in this study was a response to improve performance auditing in the banking industry. Paying attention to the factors and components of the proposed model can provide the necessary knowledge and insight for policymakers in the banking industry. The positive consequences of the successful implementation of performance auditing in the banking industry are the increase in documentation and the presentation of quality reports, increase in the sense of public trust and the satisfaction of the stakeholders due to the provision of financial transparency, improving the supervision of government agencies and improving accountability, using resources or doing work with the same resources or even less resources and as a result productivity and profitability, improving the management of government institutions, providing the opportunity to reduce costs and improve productivity and recognize the organization's capabilities and remove budget restrictions, improving the administration of affairs and the accountability of the public sector through added value and providing suggestions for correcting deficiencies and improving systems and performance, performance audit in the banking industry are the accurate assessment of

the existing financial risks of the handling unit and the creation of grounds for rapid change of strategies based on compliance with long-term goals and strategy, coordination between the employees of the organization, improving the communication between the regulatory institutions and the organization, and establishing effective communication between managers and auditors.

Based on the principles of systemic thinking, multiple methods exist for achieving success and reaching the goals of performance auditing. According to contingency theory, a complete list of factors that ensure the success of executive managers' performance auditing cannot be provided under any circumstances. However, the presented model can serve as a conceptual framework for achieving the goals of performance auditing for executive managers in banks.

Considering that the current study utilizes a grounded theory approach for presenting a qualitative model and one of the main parts of this approach is the strategies for successful implementation of performance auditing in the banking industry, the following practical recommendations are proposed based on the strategy mentioned in the theoretical model section:

- Organizing training workshops for managers to familiarize them with the benefits of performance in banks to create a correct understanding and insight into performance auditing in banks.
- Utilizing the experiences of leading countries in the field of performance auditing in banks.
- Create training related to performance auditing and joint workshops with managers and specialists and establish professional specialized associations.
- Effective use of related and practical accounting to resolve conflicts and existing challenges.
- Establishing an organizational position for a performance audit specialist.
- Developing information technology tools (creating an appropriate system for collecting financial statistics and information and employing suitable financial software).
- Taking advantage of the private sector in performance auditing.
- Creating specialized performance auditing teams in the Supreme Audit Court.
- Empowering specialized teams through international professional courses.

Alongside the mentioned items, it should be noted that since creating change and adaptation in many of the indicators affecting the establishment of a performance auditing system requires planning over a minimum period of 5 or 10 years; thus, the Supreme Audit Court of the country can simultaneously have a suitable program for adapting its related indicators in the short term and also select specific programs from some public institutions that have easier access to financial and performance information and implement performance auditing in these institutions. This approach will gradually create a culture about the benefits of performance auditing and prepare conditions for transforming the necessary information systems so that public institutions can institutionalize this type of auditing by preparing performance and financial reports.

The findings of this research can serve as a basis for further academic studies and research to enhance the field of performance auditing. Given the changes and actions taken in recent years, further research in the field of performance auditing and operational and performance evaluation of the government is essential. For this purpose, future researchers should prioritize the enablers/barriers to implementing performance auditing using a DEMATEL/Analytic Network Process (ANP) integration technique, considering the internal and external relations between the enablers/barriers. Researchers interested in performance auditing can also use techniques such as importance-performance analysis to study the enablers/barriers to implementing performance auditing.

As limitations of conducting the research, it can be mentioned that in qualitative studies, the possibility of introducing assumptions and biases by the researcher may mar the research findings. However, in the current study, efforts were made to act impartially and extract results based solely on the experiences and opinions of interviewees who were experts in the field of performance auditing. Another limitation of this research relates to the generalizability of the current study's results; considering that the current study was conducted in the banking industry, the present research results cannot easily be generalized to other sectors.

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