



Structural–Interpretive Modeling of Audit Firm Ranking in Iran

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Abstract

The present study was conducted with the aim of developing a structural–interpretive model for ranking audit firms in Iran. The participants were 10 certified public accountants employed in audit firms at the senior supervisor level and above, selected through purposive sampling. Data were collected through semi-structured interviews in the field phase. The interviews continued until theoretical saturation was achieved during the Delphi analysis process. Data were analyzed using the Delphi method and Interpretive Structural Modeling (ISM). The software utilized for the analysis included EXCEL and MICMAC. Based on the Delphi results, the identified components were confirmed. In line with the research objective of identifying the structural–interpretive model for ranking audit firms in Iran, 11 components were validated through the Delphi technique. These components included audit service quality, staff competence and experience, service diversity and complexity, internal quality control, independence and corporate governance, compliance with standards and legal requirements, risk history, violations and litigation records, operational scale and capacity, technology, digitalization and innovation, professional reputation and credibility, and customer satisfaction and loyalty. The resulting interpretive structural model, developed through logical level classification and grounded in expert experience, provides a robust operational framework for audit firms in Iran. Understanding this hierarchy of influence and dependence enables audit firm managers to strategically prioritize their resources. By transforming and strengthening these foundational factors, positive effects can be expected to cascade through higher levels of the hierarchy, ultimately leading to a substantial increase in customer satisfaction and loyalty as the most important indicator of overall organizational success.

Keywords: *Audit Firms, Audit Firm Ranking, Interpretive Structural Modeling (ISM).*

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1. Introduction

The auditing profession plays a critical role in enhancing the transparency, reliability, and credibility of financial reporting systems. In contemporary economies, audit firms are increasingly expected not only to provide assurance services but also to contribute to investor confidence, corporate governance effectiveness, capital market efficiency, and organizational sustainability. As business environments become more complex and stakeholder expectations continue to expand, the quality and performance of audit firms have become strategic concerns for regulators, professional bodies, corporations, and capital

market participants. Consequently, evaluating and ranking audit firms has emerged as an important mechanism for distinguishing high-performing firms, promoting competition, and improving the overall quality of auditing services [1, 2].

The importance of audit firm ranking extends beyond simple comparisons among firms. Ranking systems provide valuable information regarding the competencies, capabilities, and professional standing of audit firms, thereby facilitating informed decision-making by clients, investors, regulators, and other stakeholders. In many jurisdictions, ranking mechanisms have been used as indicators of audit quality, firm reputation, operational



effectiveness, and professional independence. Research suggests that higher-ranked audit firms often exhibit superior audit quality, stronger governance structures, greater professional expertise, and enhanced stakeholder trust compared with lower-ranked firms [3, 4]. Accordingly, identifying the factors that influence audit firm rankings has become a significant research topic within accounting and auditing literature.

Audit quality remains one of the most fundamental dimensions influencing the reputation and ranking of audit firms. High-quality audits contribute to the credibility of financial statements, reduce information asymmetry, and strengthen confidence in capital markets. Recent studies have emphasized that audit quality is influenced by multiple organizational and environmental factors, including auditor competence, audit effort, independence, governance mechanisms, technological capabilities, and risk management practices [5, 6]. Moreover, audit quality has been shown to influence client retention, market reputation, and competitive positioning, making it a key determinant of audit firm success and ranking [4, 7].

A substantial body of literature has highlighted the significance of auditor independence as a cornerstone of audit quality and professional credibility. Auditor independence ensures objectivity in professional judgments and enhances confidence in audit outcomes. Mechanisms designed to strengthen auditor independence, including regulatory oversight, governance arrangements, and professional ethical standards, have received increasing attention from researchers and policymakers. Studies indicate that stronger independence mechanisms contribute positively to audit effectiveness, stakeholder confidence, and organizational reputation [8, 9]. Furthermore, independence considerations frequently influence auditor selection decisions and client perceptions regarding audit firm reliability [10, 11].

Another critical determinant of audit firm performance relates to the qualifications, expertise, and experience of audit personnel. Human capital represents one of the most valuable assets within professional service firms, particularly in auditing where knowledge-intensive activities dominate organizational operations. Research demonstrates that auditor competence, technical expertise, professional training, and accumulated experience significantly affect audit quality and organizational effectiveness. Audit firms possessing highly qualified personnel are better positioned to manage complex engagements, respond to emerging risks, and deliver superior services to clients [12, 13].

Consequently, human capital development constitutes an important strategic factor in achieving higher audit firm rankings.

The growing complexity of business operations and financial reporting environments has also increased the importance of service diversity and operational capabilities among audit firms. Organizations increasingly require specialized assurance, advisory, sustainability, and risk-management services that extend beyond traditional financial audits. Audit firms capable of offering diverse and sophisticated service portfolios may gain competitive advantages and strengthen their market position. Research indicates that service diversification contributes to organizational resilience, client satisfaction, and sustainable growth, particularly in dynamic and uncertain business environments [14, 15]. Therefore, service diversity and operational scale have become important dimensions in assessing audit firm competitiveness and ranking.

Technological transformation has emerged as another major force reshaping the auditing profession. The integration of digital technologies, data analytics, artificial intelligence, blockchain applications, and automated audit tools has fundamentally altered how audit services are delivered. Technological innovations improve audit efficiency, accuracy, timeliness, and risk detection capabilities while simultaneously creating new professional challenges and opportunities. Studies have shown that audit firms adopting advanced technological systems achieve higher levels of operational effectiveness and auditor satisfaction [16, 17]. Moreover, technological capabilities increasingly influence perceptions of audit quality and organizational innovation, making digitalization an essential component of contemporary audit firm evaluation frameworks [6, 18].

Corporate governance mechanisms also play a substantial role in determining audit firm effectiveness and credibility. Strong governance structures contribute to enhanced accountability, transparency, ethical conduct, and strategic decision-making. Prior research has demonstrated that governance-related attributes influence auditor selection processes, audit outcomes, firm value, and stakeholder confidence [19, 20]. Furthermore, governance quality affects how audit firms manage risks, maintain professional standards, and sustain long-term organizational performance. Consequently, governance considerations have become increasingly relevant in discussions concerning audit firm ranking systems and performance evaluation frameworks.

Risk management capabilities constitute another important dimension affecting audit firm success. The auditing profession inherently involves significant exposure to litigation risk, professional liability, reputational threats, and regulatory scrutiny. Effective risk management enables audit firms to identify, assess, and mitigate potential threats while maintaining service quality and professional integrity. Previous studies have emphasized the relationship between risk management practices, audit effort, and audit quality outcomes [5, 21]. Additionally, an audit firm's historical record regarding professional violations, litigation cases, and regulatory sanctions can significantly influence stakeholder perceptions and organizational reputation.

Professional reputation and organizational identity represent intangible yet highly influential assets within the auditing profession. Reputation is developed through consistent service quality, ethical conduct, professional competence, and stakeholder trust. High-reputation audit firms often attract more prestigious clients, retain talented professionals, and achieve stronger market positions. Research has highlighted the importance of professional identity, organizational culture, and meaningful professional engagement in shaping auditors' performance and commitment [22, 23]. Similarly, professional reputation influences market competition, client relationships, and long-term organizational sustainability [24, 25].

Recent developments in sustainability reporting, ESG assurance, and stakeholder accountability have further expanded the role of audit firms in contemporary business environments. Organizations increasingly rely on auditors to provide assurance over non-financial information, including sustainability disclosures and ESG performance indicators. Research suggests that the selection of assurance providers and the credibility of assurance services can significantly affect firm value and stakeholder confidence [1, 26]. As a result, audit firms must continuously adapt their capabilities, expertise, and strategic orientations to remain competitive within evolving assurance markets.

Within the Iranian auditing environment, audit firm ranking has received increasing attention from researchers, regulators, and practitioners. Several studies have investigated factors affecting audit firm size, audit quality, auditor oversight systems, marketing practices, and ranking methodologies. Research conducted in Iran has identified numerous determinants of audit firm performance, including organizational capabilities, market competition, human resources, professional reputation, and regulatory compliance [27, 28]. Other studies have examined the

pathology of auditor oversight systems, highlighting the need for more effective frameworks to ensure professional quality and accountability [29]. Furthermore, researchers have proposed comprehensive models for evaluating audit report quality and comparing audit firm rankings within the Iranian context [7].

Despite these valuable contributions, the existing literature reveals several limitations. Most prior studies have focused on identifying individual determinants of audit quality, firm performance, or auditor selection without examining the hierarchical relationships among these factors. While previous research has identified numerous variables affecting audit firm rankings, relatively little attention has been devoted to understanding how these variables interact and influence one another within an integrated structural framework. Moreover, existing ranking approaches often emphasize outcome measures while neglecting the underlying causal mechanisms that shape organizational performance and professional reputation [4, 30]. Consequently, there remains a need for methodologies capable of uncovering the complex interrelationships among ranking determinants and identifying the foundational drivers that exert the greatest influence on audit firm performance.

Interpretive Structural Modeling (ISM) provides a valuable methodological approach for addressing this gap. ISM enables researchers to identify, structure, and hierarchically organize complex relationships among variables within a system. By distinguishing driving factors from dependent factors, ISM facilitates a deeper understanding of causal pathways and strategic priorities. Previous applications of ISM in auditing and accounting research have demonstrated its usefulness in analyzing complex organizational phenomena and identifying key leverage points for managerial intervention [31]. In the context of audit firm ranking, ISM can provide a comprehensive framework for understanding how dimensions such as independence, governance, technology, human capital, quality control, reputation, and client satisfaction interact to shape overall organizational standing.

The increasing complexity of audit markets, the growing emphasis on accountability and sustainability, and the need for transparent evaluation mechanisms underscore the importance of developing a robust structural model for ranking audit firms. Such a model can support regulators in designing effective oversight systems, assist audit firms in prioritizing strategic investments, and provide stakeholders with a more comprehensive understanding of audit firm

performance. Furthermore, identifying the hierarchical relationships among ranking determinants can contribute to theory development and enhance evidence-based decision-making within the auditing profession [2, 32, 33].

Therefore, the present study aims to develop an Interpretive Structural Model of the factors affecting the ranking of audit firms in Iran and to identify the hierarchical relationships among these factors in order to determine the key driving and dependent components within the audit firm ranking system.

2. Methodology

The research was conducted using an exploratory and survey-based design. In the qualitative and exploratory section, the Delphi method was used, while in the quantitative section, Interpretive Structural Modeling (ISM) was employed. In both the qualitative section and the

Interpretive Structural Modeling procedure, the study population consisted of experts, including university professors who were members of the Iranian Association of Certified Public Accountants and certified public accountants working in audit firms at the senior supervisor level and above. Using judgmental convenience sampling, 10 individuals were selected. Through the library research technique, the components affecting the model were identified. First, the Delphi technique was used to screen and evaluate the identified components. Subsequently, modeling was performed using the Delphi method and Interpretive Structural Modeling. The software used included EXCEL and MICMAC.

The qualitative section of this study was conducted based on the views of 10 experts, including certified public accountants working in audit firms at the senior supervisor level and above. Their frequency distribution is presented in Table 1.

Table 1. Demographic Characteristics of the Experts

Demographic Characteristic	Category	Frequency	Percentage
Gender	Female	4	40
	Male	6	60
Age	30–40	3	30
	41–50	4	40
	51 and above	3	30
Education	Bachelor's degree	0	0
	Master's degree	0	0
	PhD	10	100
Work Experience	10 years	3	30
	11–20 years	5	50
	21 years and above	2	20
Total		10	100

3. Findings and Results

In this study, based on the review of the research literature, a total of 11 main components were identified.

Subsequently, in order to ensure the validity of the identified dimensions and components, determine the credibility of these components, and answer the research questions, the Delphi technique was used. The Delphi method was carried out as follows.

Table 2. Delphi Analysis of the Identified Components

Identified Components	Mean	Median	Mode	Standard Deviation	Range	First Quartile	Second Quartile	Third Quartile	Status
Audit service quality	8.50	8.50	8	0.519	1	8	8.50	9	Confirmed
Staff competence and experience	8.15	8	8	0.745	3	8	8	9	Confirmed
Service diversity and complexity	8.20	8	8	0.835	3	8	8	9	Confirmed
Internal quality control	7.65	7	7	0.812	2	7	7	8	Confirmed
Independence and corporate governance	8.35	7	7	0.812	3	7	7	8	Confirmed

Compliance with standards and legal requirements	7.15	7	7	0.933	3	6	7	8	Confirmed
Risk history, violations, and litigation records	7.15	7	7	0.812	3	7	7	8	Confirmed
Operational scale and capacity	7.10	7	7	0.967	3	6	7	8	Confirmed
Technology, digitalization, and innovation	7.05	7	8	1.05	4	6	7	8	Confirmed
Professional reputation and credibility	8.50	8.50	8	0.519	1	8	8.50	9	Confirmed
Customer satisfaction and loyalty	8.15	8	8	0.745	3	8	8	9	Confirmed
Kendall's Coefficient	0.855	Degrees of Freedom	10	Significance Level	0.000				

Based on the results obtained from the Delphi technique, all values were above 5. Therefore, no component was removed, and all components were confirmed. Kendall's statistic was also obtained as 0.855 and was confirmed; therefore, the Delphi results were confirmed in the first round.

In the next stage, Interpretive Structural Modeling (ISM) was used for data analysis in MICMAC software. Interpretive Structural Modeling is a method for examining the effect of each variable on other variables. This design represents a comprehensive approach to assessing

relationships and is used to develop a model framework so that the general objectives of the research can be achieved.

The first step in Interpretive Structural Modeling is calculating the internal relationships among the indicators. To reflect the internal relationships among the indicators, expert opinions are used. The matrix obtained at this stage shows which variables are influenced by a given variable and which variables influence it. Conventionally, symbols such as those presented in Table 3 are used to identify the pattern of relationships among elements.

Table 3. States and Symbols Used to Express the Relationships among the Identified Indicators

V	A	X	O
Variable i affects variable j	Variable j affects variable i	Bidirectional relationship	No relationship

The Structural Self-Interaction Matrix is formed by comparing the study dimensions and indicators using four types of conceptual relationships. The obtained information is summarized based on the Interpretive Structural Modeling

method, and the final Structural Self-Interaction Matrix is formed. Based on the symbols presented in Table 3, the Structural Self-Interaction Matrix is shown in Table 4.

Table 4. Structural Self-Interaction Matrix (SSIM)

SSIM	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
C1		A	A	A	A	A	A	A	A	X	V
C2			V	V	A	V	V	V	A	V	V
C3				A	A	A	X	X	A	V	V
C4					A	X	V	V	A	V	V
C5						V	V	V	X	V	V
C6							V	V	X	V	V
C7								X	A	V	V
C8									A	V	V
C9										V	V
C10											V
C11											

The reachability matrix is obtained by converting the Structural Self-Interaction Matrix into a binary matrix of zeros and ones. In the reachability matrix, the main diagonal

entries are assigned a value of one. Therefore, the reachability matrix of the ISM technique is presented in Table 5.

Table 5. Reachability Matrix of the Identified Indicators

SSIM	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
C1	1	0	0	0	0	0	0	0	0	1	1
C2	1	1	1	1	0	1	1	1	0	1	1
C3	1	0	1	0	0	0	1	1	0	1	1
C4	1	0	1	1	0	1	1	1	0	1	1
C5	1	1	1	1	1	1	1	1	1	1	1
C6	1	0	1	1	0	1	1	1	0	1	1
C7	1	0	1	0	0	0	1	1	0	1	1
C8	1	0	1	0	0	0	1	1	0	1	1
C9	1	1	1	1	1	1	1	1	1	1	1
C10	1	0	0	0	0	0	0	0	0	1	1
C11	0	0	0	0	0	0	0	0	0	0	1

To determine the relationships and levels of the criteria, the output set and input set for each criterion must be extracted from the reachability matrix.

The reachability set, including row elements, outputs, or driving effects, refers to the variables that can be reached through a given variable.

The antecedent set, including column elements, inputs, or dependence effects, refers to the variables through which a given variable can be reached.

The output set includes the criterion itself and the criteria influenced by it. The input set includes the criterion itself and the criteria that influence it. Then, the set of bidirectional relationships among the criteria is determined.

Table 6. Input Sets, Output Sets, and Intersections for Each Variable

Variable	Input	Output	Intersection
C1	C1-C2-C3-C4-C5-C6-C7-C8-C9-C10	C1-C10-C11	C1-C10
C2	C2-C5-C9	C1-C2-C3-C4-C6-C7-C8-C10-C11	C2
C3	C2-C3-C4-C5-C6-C7-C8-C9	C1-C3-C7-C8-C10-C11	C3-C7-C8
C4	C2-C4-C5-C6-C9	C1-C3-C4-C6-C7-C8-C10-C11	C4-C6
C5	C5-C9	C1-C2-C3-C4-C5-C6-C7-C8-C9-C10-C11	C5-C9
C6	C2-C4-C5-C6-C9	C1-C3-C4-C5-C6-C7-C8-C9-C10-C11	C4-C6
C7	C2-C3-C4-C5-C6-C7-C8-C9	C1-C3-C7-C8-C10-C11	C3-C7-C8
C8	C2-C3-C4-C5-C6-C7-C8-C9	C1-C3-C7-C8-C10-C11	C3-C7-C8
C9	C5-C9	C1-C2-C3-C4-C5-C6-C7-C8-C9-C10-C11	C5-C9
C10	C1-C2-C3-C4-C5-C6-C7-C8-C9-C10	C1-C10-C11	C1-C10
C11	C1-C2-C3-C4-C5-C6-C7-C8-C9-C10-C11	C11	C11

For variable C_i , the reachability set, or output/driving set, includes the variables that can be reached through variable C_i . The antecedent set, or input/dependence set, includes the variables through which variable C_i can be reached. After determining the reachability set and the antecedent set, the intersection of the two sets is calculated. The first variable for which the intersection of the two sets

is equal to the reachability set, or outputs, is assigned to the first level. Therefore, the first-level elements are the most dependent elements in the model. After determining the level, the criterion whose level has been identified is removed from all sets, and the input and output sets are formed again to determine the level of the next variable.

Table 7. Determination of the First Level in the ISM Hierarchy

Variables	Number of Rows	Number of Columns
Audit service quality	1	9
Staff competence and experience	8	2
Service diversity and complexity	5	7
Internal quality control	7	4
Independence and corporate governance	10	0

Compliance with standards and legal requirements	7	4
Risk history, violations, and litigation records	5	7
Operational scale and capacity	5	7
Technology, digitalization, and innovation	9	1
Professional reputation and credibility	2	9
Customer satisfaction and loyalty	0	9

After determining the reachability set and the antecedent set, the intersection of the two sets is calculated. The first variable for which the intersection of the two sets is equal to the reachability set, or outputs, is assigned to the first level. Therefore, the first-level elements are the most dependent

elements in the model. After determining the level, the criterion whose level has been identified is removed from all sets, and the input and output sets are formed again to determine the level of the next variable.

Table 8. Leveing in the ISM Hierarchy

Symbol	Research Variables	Level
C1	Audit service quality	2
C2	Staff competence and experience	5
C3	Service diversity and complexity	3
C4	Internal quality control	4
C5	Independence and corporate governance	6
C6	Compliance with standards and legal requirements	4
C7	Risk history, violations, and litigation records	3
C8	Operational scale and capacity	3
C9	Technology, digitalization, and innovation	6
C10	Professional reputation and credibility	2
C11	Customer satisfaction and loyalty	1

Therefore, variable C11 is the first-level variable. After identifying the first-level variable(s), these variable(s) are removed, and the input and output sets are calculated without considering the first-level variables. The intersection set is identified, and the variables whose intersection is equal to their input set are selected as second-level variables. Variables C1-C10 are located at the second level. Variables C3-C7-C8 are located at the third level. Variables C4-C6 are located at the fourth level. The final pattern of the levels of the identified variables is shown in the figure. In this diagram, only the significant relationships of the elements at each level with the elements at the lower level, as well as the significant internal relationships among the elements in each row, are considered.

Based on the Interpretive Structural Modeling conducted, a six-level model was obtained. Figure 1 presents the Interpretive Structural Model. In this model, moving from bottom to top, the degree of dependence increases and the degree of driving power decreases. Through the level classification conducted based on expert experience, this model shows which components should be changed in order to achieve the highest efficiency and effectiveness in ranking audit firms in Iran. The components of independence and corporate governance, as well as technology, digitalization, and innovation, were positioned at the lowest level and had the greatest driving power. Moreover, customer satisfaction and loyalty were positioned at the highest level and had the greatest dependence.

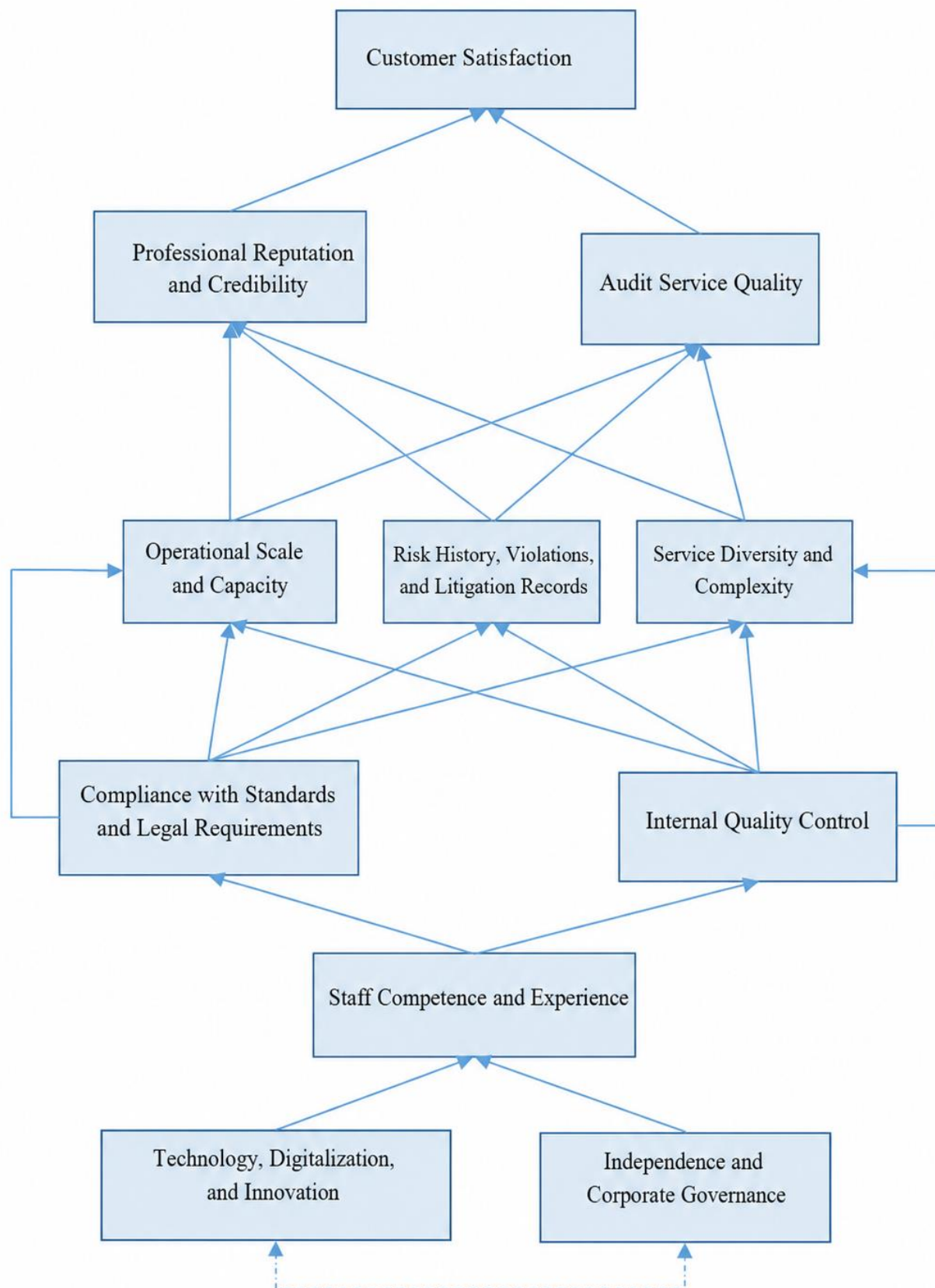


Figure 1. Audit Firm Ranking Model in Iran

4. Discussion and Conclusion

The present study aimed to develop an Interpretive Structural Model (ISM) for the ranking of audit firms in Iran and to identify the hierarchical relationships among the factors influencing this ranking system. The findings of the Delphi analysis confirmed all eleven identified components, indicating a strong consensus among experts regarding the relevance and importance of these factors in evaluating and ranking audit firms. The high Kendall's coefficient (0.855) demonstrated substantial agreement among participants and reflected the consistency of expert judgments concerning the proposed dimensions. The validated components included audit service quality, staff competence and experience, service diversity and complexity, internal quality control, independence and corporate governance, compliance with standards and legal requirements, risk history and litigation records, operational scale and capacity, technology, digitalization and innovation, professional reputation and credibility, and customer satisfaction and loyalty. These findings support previous studies that emphasized the multidimensional nature of audit firm performance and the necessity of considering both technical and organizational factors in audit firm evaluation systems [4, 7, 30].

One of the most important findings of the study was the hierarchical arrangement of the identified factors. The ISM results revealed that customer satisfaction and loyalty occupied the highest level of the hierarchy and represented the most dependent variable in the model. This finding suggests that customer satisfaction is not an isolated organizational outcome but rather the culmination of a complex network of underlying organizational, professional, and strategic factors. From a theoretical perspective, customer satisfaction can be viewed as the ultimate indicator of audit firm success because it reflects stakeholders' perceptions regarding service quality, professional competence, trustworthiness, responsiveness, and value creation. This finding aligns with studies demonstrating that client perceptions and long-term client relationships are significantly influenced by audit quality, organizational reputation, and professional performance [16, 24]. Furthermore, it supports arguments suggesting that audit firms must focus on strengthening foundational organizational capabilities before expecting improvements in client satisfaction and loyalty.

The results also demonstrated that audit service quality and professional reputation and credibility were positioned

at the second level of the hierarchy. This finding is particularly meaningful because it indicates that reputation and audit quality function as direct antecedents of customer satisfaction. The prominence of audit quality in the model is consistent with extensive auditing literature emphasizing its central role in stakeholder confidence, financial reporting credibility, and organizational legitimacy. Previous research has consistently demonstrated that firms perceived to provide high-quality audits enjoy stronger market positions, attract higher-quality clients, and achieve greater organizational success [3, 6]. Similarly, professional reputation has long been recognized as a critical intangible asset in professional service organizations. Studies have shown that reputation is developed through the consistent delivery of quality services, adherence to professional standards, and ethical conduct, all of which influence client trust and market competitiveness [22, 23]. Therefore, the placement of audit quality and reputation immediately below customer satisfaction appears both theoretically and empirically justified.

Another significant finding concerns the third level of the model, which included service diversity and complexity, operational scale and capacity, and risk history, violations, and litigation records. These factors appear to act as intermediate mechanisms linking organizational capabilities to external outcomes such as reputation and perceived audit quality. Service diversity and complexity indicate an audit firm's ability to respond to increasingly sophisticated client needs and changing regulatory environments. Contemporary audit firms are expected to provide a broad portfolio of services, including assurance, advisory, risk management, sustainability reporting, and technology-related services. Organizations that successfully diversify their service offerings often strengthen their market position and enhance stakeholder perceptions of competence and innovation [1, 14]. Likewise, operational scale and capacity influence the ability of audit firms to undertake large engagements, maintain service continuity, and respond effectively to market demands. Prior research has identified firm size and operational capabilities as important determinants of competitiveness and organizational sustainability [2, 27].

The inclusion of risk history, violations, and litigation records at the third level is also noteworthy. Audit firms operate in environments characterized by significant professional, legal, and reputational risks. A history of regulatory violations or litigation can negatively affect stakeholder trust and damage organizational reputation. Conversely, firms with strong records of compliance and

ethical conduct are more likely to achieve favorable market evaluations. This finding supports studies emphasizing the importance of risk management practices and regulatory compliance in maintaining audit quality and professional credibility [5, 21]. It also reinforces the notion that ranking systems should not focus exclusively on performance outcomes but should also consider the risk profile and professional conduct history of audit firms.

At the fourth level of the hierarchy, compliance with standards and legal requirements and internal quality control emerged as important determinants. Their positioning suggests that these variables serve as foundational mechanisms through which higher-level organizational outcomes are achieved. Internal quality control systems ensure consistency, reliability, and compliance throughout audit engagements, thereby reducing errors and enhancing audit effectiveness. Similarly, adherence to professional standards and legal requirements safeguards the integrity of audit processes and promotes stakeholder confidence. Previous studies have consistently linked effective quality control systems and regulatory compliance with higher audit quality and stronger organizational performance [8, 34]. These findings indicate that audit firms seeking to improve their rankings should prioritize investments in quality assurance systems, monitoring procedures, and regulatory compliance programs.

The fifth level of the model was occupied by staff competence and experience. Although human capital has frequently been identified as a direct determinant of audit quality, the present study suggests that its influence extends even deeper within the organizational structure. Competent and experienced personnel provide the expertise necessary to implement quality control procedures, comply with professional standards, manage complex engagements, and address emerging risks. The findings support human capital theories emphasizing that organizational effectiveness is largely dependent upon the knowledge, skills, and experience of employees. Prior studies have shown that investments in auditor training, professional development, and knowledge management significantly enhance audit quality and organizational performance [12, 13]. Therefore, the placement of staff competence at a foundational level highlights the strategic importance of workforce development in achieving sustainable improvements in audit firm ranking.

Perhaps the most influential finding of the study concerns the sixth and lowest level of the hierarchy, where independence and corporate governance and technology,

digitalization, and innovation were identified as the primary driving factors. According to the ISM framework, variables located at the lowest level exert the strongest influence on the overall system while being relatively less dependent on other variables. This finding suggests that meaningful improvements in audit firm rankings ultimately originate from governance quality and technological capabilities. The strategic significance of auditor independence has been extensively documented in auditing literature. Independence promotes objectivity, professional skepticism, and stakeholder confidence, thereby influencing virtually every aspect of audit quality and organizational credibility [8, 9]. Similarly, strong governance structures facilitate accountability, transparency, and ethical decision-making, all of which contribute to organizational effectiveness and professional legitimacy [10, 19].

The importance of technology, digitalization, and innovation as fundamental drivers is equally significant. The auditing profession is experiencing rapid technological transformation driven by advances in artificial intelligence, data analytics, blockchain technologies, and automated audit systems. These innovations have altered audit methodologies, enhanced risk assessment capabilities, improved efficiency, and expanded the scope of assurance services. Research indicates that technologically advanced audit firms are better positioned to address complex client demands, improve audit quality, and maintain competitive advantages in increasingly dynamic markets [16, 17]. Furthermore, digital transformation contributes to organizational resilience and long-term sustainability, particularly in environments characterized by rapid change and uncertainty [15, 18]. The present findings suggest that technology should not merely be viewed as a supporting tool but rather as a strategic capability that shapes the entire audit firm ranking structure.

The results also have implications for understanding the interaction among the identified variables. The hierarchical structure indicates that technological innovation and governance mechanisms influence staff competence and organizational systems, which in turn affect quality control, regulatory compliance, operational capacity, and risk management. These intermediate variables subsequently influence audit quality and professional reputation, ultimately leading to customer satisfaction and loyalty. Such a cascading effect highlights the systemic nature of audit firm performance and demonstrates that organizational success cannot be achieved through isolated improvements. Instead, sustainable advancement requires coordinated

development across multiple organizational dimensions. This conclusion is consistent with contemporary perspectives emphasizing integrated management approaches and systems thinking within professional service organizations [32, 35].

The findings also support recent evidence concerning the growing significance of audit firm ranking in auditor selection decisions, market competition, and organizational sustainability. As stakeholders increasingly rely on rankings to evaluate audit providers, firms must recognize that ranking outcomes are influenced by a broad network of interrelated factors rather than by a single performance indicator. Studies examining auditor selection, auditor switching, audit market competition, and audit tenure have similarly highlighted the importance of organizational capabilities, reputation, governance quality, and professional performance in shaping stakeholder decisions [11, 25, 33]. Consequently, the structural model developed in this study provides a valuable framework for understanding the underlying mechanisms through which audit firms can strengthen their competitive position and improve their ranking status.

Overall, the findings contribute to the auditing literature by providing a comprehensive and hierarchical perspective on the determinants of audit firm ranking. Unlike previous studies that primarily examined individual variables in isolation, the present research demonstrates how multiple factors interact within an integrated system and identifies the key driving forces underlying audit firm performance. The results suggest that governance quality and technological innovation serve as foundational drivers, human capital and quality assurance mechanisms function as enabling factors, operational and risk-related capabilities act as intermediate variables, and audit quality, reputation, and customer satisfaction represent the ultimate outcomes of organizational excellence. This integrated perspective provides both theoretical insights and practical guidance for improving audit firm performance and strengthening the effectiveness of ranking systems within the auditing profession.

This study has several limitations that should be considered when interpreting the findings. First, the research relied on the opinions of a relatively small group of experts, which may limit the generalizability of the results to all audit firms and professional environments. Second, the Interpretive Structural Modeling approach is based on expert judgment and therefore reflects subjective perceptions regarding the relationships among variables. Third, the study

focused specifically on the Iranian auditing environment, and institutional, regulatory, and cultural differences may influence the applicability of the model in other countries. Finally, the study emphasized the identification of hierarchical relationships rather than the measurement of the strength of causal effects among variables.

Future studies may test the proposed model using quantitative techniques such as structural equation modeling to examine the strength and significance of the identified relationships. Comparative studies across different countries and regulatory environments could also provide valuable insights into the universality of the proposed hierarchy. Researchers may further investigate the role of emerging technologies such as artificial intelligence, blockchain, and advanced analytics in shaping audit firm competitiveness and ranking. Additionally, future research could explore the perspectives of clients, regulators, and investors to complement expert-based evaluations and provide a more comprehensive understanding of audit firm ranking systems.

Managers of audit firms should prioritize investments in governance systems, auditor independence mechanisms, and technological infrastructure because these factors represent the strongest drivers of organizational performance. Audit firms should also strengthen professional development programs to enhance staff competence and maintain effective quality control systems. Regulatory bodies may use the proposed model as a framework for developing more comprehensive ranking and evaluation systems that consider both performance outcomes and foundational organizational capabilities. Furthermore, professional associations can utilize the findings to design policies and training programs aimed at improving audit quality, professional credibility, and client satisfaction throughout the auditing industry.

Authors' Contributions

Authors equally contributed to this article.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

All procedures performed in this study were under the ethical standards.

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