



## Soft modeling of organizational factors affecting the competitiveness of commercial banks based on interpretive structural approach

Vahid Nasehifar<sup>1\*</sup>, Mahmoud Mohammadian<sup>1</sup>, Mohammad Taghi Taghavifard<sup>2</sup>, Ali Mansour Sadeghi<sup>1</sup>

<sup>1</sup> Department of Business Management, Faculty of Management and Accounting, Allameh Tabatabai University, Tehran, Iran.

<sup>2</sup> Department of Industrial Management, Faculty of Management and Accounting, Allameh Tabatabai University, Tehran, Iran.

Received: Dec 2024-03 / Revised: Dec 2024-15 / Accepted: Dec 2024-29

### Abstract

The issue of competitiveness has been considered by many researchers in recent decades, because it has become one of the most strategic and fundamental issues of business organizations, because it is the basis of survival and sustainability of the organization; In this regard, in accordance with the purpose and problem, the main strategy of the research is methodological pluralism by using simultaneously the qualitative method of thematic analysis and the quantitative method of structural-interpretive modeling in sequence. In the qualitative part of the research population, there were 15 experts were extracted 138 basic themes, 37 organizing themes and 14 global themes, which is the basis of quantitative analysis. The sample of the research in the quantitative part was the opinions of 11 managers of private banks in the country. The final model consists of 6 levels; In the first level of business model innovation, the most influential component and in the sixth level, market share, internal performance and international performance are the most influential components of competitiveness. Influence and dependency analysis using MIC-MAC shows that the criteria of organizational culture, human resource management and business model innovation are low dependency and high leadership; External stakeholder management criteria, internal performance, bank attractiveness and market share, these variables have strong dependence and poor guidance, and knowledge management criteria and business intelligence They have the nature of interface and dependency criteria.

**Keywords:** Bank Competitiveness, Structural-Interpretive Modeling, Soft Modeling, Competitiveness, Private Banks.

**Paper Type:** Original Research

### 1. Introduction

In recent decades, competitiveness has received significant attention from researchers, as it has become one of the most strategic and fundamental aspects of commercial organizations, forming the basis for their survival and sustainability. Consequently, commercial organizations must adopt the most effective tools and methods for organizational transformation to ensure their survival, continuity, and growth. These strategies enable organizations to adapt to environmental changes, respond to business requirements, and navigate market fluctuations (Elmansori & Al-Hindawi, 2022). Kazarenkova (2006) defines bank competitiveness as both the practical ability and potential of a financial institution to develop and offer highly competitive service products in the market, thereby fostering a positive image of a modern and trustworthy bank that effectively meets customer demands (Kazarenkova, 2006, as cited in Tuy & Dong, 2021). Banks face competitive pressure from both external and internal sources. External factors include market structure, competitor characteristics, and the scope of competition for deposits, while internal factors encompass financial health, location, market share, and other specific attributes of a commercial bank. The majority of literature on banking and corporate competitiveness focuses on the competitive pressures arising from market structure and other market participants. However, our dataset allows for an examination of how organizational factors – distinct from market structure – affect the competitiveness of banks (Berger et al., 2022). The Service sector plays a major role in the economies and it is considered as the most important effective factor in nations' economic growth promotion (Mousavi et al., 2021). In recent years, the banking industry has undergone a digital revolution. On one hand, banks face mounting pressure from fintech companies, which leverage innovative information technology and automation in traditional banking operations. Prominent examples can be

\*Corresponding Author: [vahid.n3004@gmail.com](mailto:vahid.n3004@gmail.com)

observed in China, where the two major technology firms such as Alibaba and Tencent have entered a broad range of financial services, including payments, wealth management, and lending. On the other hand, the banking sector itself has responded to the growing supply of technology and shifts in consumer expectations by transitioning from physical branch-based operations to adopting IT solutions and big data analytics (Abharawal, Fox & Vives, 2019) (Carstens, 2018; Vives & Ye, 2021). The competitive and complex conditions of Iran's current economy, the increasing number of private banks, presenting new plans for attracting and retaining customers, and the increasing level of awareness and expectations of banks' customers have urged top executives of banks to change their strategic attitudes to the market and customers (Farokhi et al., 2018). The Iranian banking sector has undergone significant transformations in recent decades, including extensive mergers, the enactment of the usury-free banking law, and the recent entry of the private sector into this domain. The environment in which banks operate is highly dynamic and competitive, requiring them to compete with multiple factors at both national and international levels to ensure their survival. As active entities in the banking industry, banks function within a framework that is constantly subject to substantial changes in regulations, tools, and government policies. Adapting to these changes is essential for survival in this sector. Numerous factors across different domains influence the competitiveness of commercial banks. These factors may stem from various operational aspects of institutions at both individual and organizational levels. It appears that enhancing competitiveness can ultimately impact the efficiency of financial institutions. Given that no comprehensive research has yet been conducted on identifying the key factors affecting competitiveness in the banking industry, nor have competitiveness indicators been systematically identified in previous studies, and since the consequences of competitiveness remain ambiguous, this study aims to explore the determinants of competitiveness in commercial banks. Considering that various factors influence the competitiveness of institutions and that changes in any of these variables can alter competitiveness, the primary objective of this research is to propose a competitiveness model for commercial banks.

## 2. Research Background

Competition is one of the fundamental indicators of a dynamic and growing banking system, which in turn contributes to a country's economic prosperity. Several indicators are proposed to enhance the capabilities of banks, with competitiveness being among the most crucial. However, a comprehensive examination of competition within the banking system has yet to be undertaken. From a macroeconomic perspective, studying competitiveness in the banking industry is of great importance (Atifi, Fathi 2020). Although market orientation has been progressively evolving, simultaneously addressing bank competitiveness and market orientation is critical. Neglecting this aspect creates a gap in perceiving competitiveness as a comprehensive concept within the banking industry. This concept can be analyzed from its influencing factors to its outcomes. Competitiveness comprises three main dimensions: infrastructural, procedural, and performance-based. The infrastructural dimension includes all the key indicators a bank needs to succeed and serves as a prerequisite for competition in the banking industry. The second dimension which is the procedural dimension involves the formulation and execution of effective operational strategies and growth-oriented plans. The third dimension that is the performance-based dimension encompasses both financial and non-financial performance indicators (Egbendewe & Oloufade, 2019). Bank competitiveness arises from the combination of assets and processes. Assets can be either inherent or human-made, while processes transform these assets into economic benefits derived from customer sales, ultimately fostering competitiveness. These concepts can be represented through the global competitiveness formula. Another perspective for examining competitiveness in the banking industry is identifying its sources. The sources of competitiveness can be categorized into three main areas: technology, organizational structure, and human resources. Among these, competitive advantages derived from human resources tend to be more sustainable and enduring compared to other advantages, as it takes longer for competitors to replicate them (Khatibi & Salem, 2015). The four key factors of competitiveness that generally define the prevailing economic environment of a country are: economic performance, government efficiency, business efficiency, and infrastructure. Based on these four factors and considering more than 300 criteria, the World Competitiveness Yearbook concludes that proper performance in these four dimensions creates an environment within the country that ensures global competitiveness (Fakorsaghih & Sadeghi, 2016). Strategy can be applied in the market environment within a competitive framework that extends beyond rivals. Changes inside or outside the market not only create market opportunities and threats to competitors but also introduce competitive risks. Fahy states that competitive risk includes any change in the market that may negatively impact a company's existing and potential strategy. Therefore, the executive team must pose the following three questions to the intelligence group: What competitive risks does our strategy face? What competitive risks might we encounter in the future? How can we best manage these risks? Answering these questions requires the intelligence team to go beyond competitive trends, patterns, and disruptions to identify and assess risks, thus determining the extent to which certain competitors can negatively impact the bank. In many studies, competitiveness is viewed as a static concept. For example, at a specific point in time, how is an organization positioned

competitively, with little attention paid to the sustainability of this position (Louhichi, Louati & Boujelbene, 2020). In general, market-driven competitiveness can enhance the performance of any business. Market orientation and market focus are factors that, by improving performance, increase competitive strength (Alexey et al., 2019). Competitiveness can be examined at the national, industry, and firm levels. Naturally, national competitiveness is determined by a country's industries, while firm-level competitiveness defines the competitiveness of an industry. When industry competitiveness is considered as the micro-environment for the operations and competition of firms and businesses, it takes on an infrastructural nature. Conversely, when examined as a collection of active firms in a specialized field, it adopts a functional nature (Fedyshyn, et al. 2019). Therefore, focusing on the firm level is essential to understanding the functional concept of banking competitiveness. On a micro scale, competitiveness relates to the value a product creates for a "customer" compared to competitors, which depends on two key factors: the desirability of benefits obtained from owning or using a product and the costs incurred by the customer in acquiring or using that product. Excellence in either of these two factors makes an organization competitive (Sukkar, Hawasli, Al-Samman, 2020). Below, we mention several similar studies in the field of banking competitiveness: Su et al. (2021) conducted a study on the competitiveness of commercial banks in China. Due to disagreements over whether competition among banks leads to stability or vulnerability in the financial system, this research was carried out to analyze China's banking industry. The results indicate that competition in the banking sector negatively affects systemic risk. This means that increased competition in the banking sector ultimately reduces systemic risk. Additionally, based on the findings, the recommended policy is that banks should work to reduce and control systemic risk. They may achieve this by increasing their market share and accelerating transformation to improve their competitiveness, which helps the Chinese banking system achieve stable and sustainable stability. Dias (2020) conducted research examining bank competitiveness and stability. This study analyzed the impact of bank competition on their stability, focusing on Portugal's banking sector between 2006 and 2018. Several competition measures were used to assess this relationship (Boone, Herfindahl-Hirschman (HHI) Index, and Lerner Index). The findings show that competition has a positive effect on bank stability, thus supporting the competition-stability hypothesis. Furthermore, using a single competition metric to address this issue is insufficient for drawing definitive conclusions about the role of competition in banking stability in Portugal. Mirnezami et al. (2021) conducted a study to develop a competitiveness model for Iranian banks, emphasizing the role of human capital training. The research was based on an empiricist philosophy and employed a deductive-inductive method. The statistical population included marketing professors and managers from Iran's banking network. A non-probability, purposive sampling method was used, ultimately selecting 12 experts for the study. Data analysis was performed using MaxQDA and MatLab software. The results identified the key competitiveness indicators in the banking industry as follows: organizational knowledge management, human capital training and development, customer experience management, market orientation, brand equity, bank structure, change management, customer satisfaction and loyalty, marketing mix, information and communication technology, and financial management. These indicators were measurable and assessable through 45 specific items. Amiri and Gelich (2020) conducted an analytical study on the role of bank competitiveness in strengthening the resilience of the banking industry, providing evidence from selected Iranian banks. The banking industry can contribute significantly to the formation of a resilient economy by strengthening its structure through channels such as competitiveness, corporate governance, and resource management. This study analyzed competition among 18 Iranian banks during the period 2006–2018 using panel data methodology, the Lerner index, and Van Loonsteijn's approach. The findings indicate that, during the period under review, the industry had low capacity for enhancing competitiveness and decentralization. This result suggests that the banking industry has failed to achieve its resilience goals through strengthening competitive dynamics. Consequently, improving the competitive environment by easing regulations, revising guidelines, reducing directive policies, and increasing competitive incentives is recommended.

### 3. Research Methodology

Given that the present study is exploratory and aims to analyze the structural-interpretive factors influencing the competitiveness of commercial banks in the country, the primary research strategy is methodological pluralism. This approach simultaneously employs both qualitative and quantitative methods in a sequential manner. In the qualitative phase, the study identifies and extracts organizational factors affecting the competitiveness of commercial banks using thematic analysis. In the quantitative phase, structural-interpretive modeling (ISM) is employed to rank the identified factors and explain their interrelationships. Thematic analysis is a qualitative data analysis method that facilitates the conversion of qualitative information into quantitative data (Boyatzis, 1998). According to Boyatzis (1998), the thematic analysis process ultimately results in three categories of themes:

- Basic themes (key codes and points present in the text)
- Organizing themes (categories derived from the combination and summarization of basic themes)
- Global themes (overarching themes that encompass the fundamental principles governing the text as a whole) (Abedi Jafari et al., 2011).

Soft Modeling: Modern-day problems are highly complex and continue to grow in intricacy and multiplicity. The increasing complexity of these issues makes it challenging to model and understand them using hard operations research methods. The root of this challenge lies in the fact that organizations are composed of human resources, and unlike machines, individuals do not function in a mechanical manner. Soft modeling acknowledges that humans are an inseparable part of organizations, each possessing unique worldviews, interests, and motivations. Additionally, soft operations research recognizes the challenges associated with predicting human behavior. It primarily relies on qualitative, rational, interpretive, and structured methods to explore and interpret various perspectives within an organization and critically examine the problems under investigation. Structural-interpretive modeling (ISM) is an interactive learning process in which a set of interrelated elements is structured within a comprehensive, systematic model (Azevado, et al., 2013). The key steps in this method, as outlined by Tseng (2013), include:

- Identifying the dimensions, elements, and variables required for modeling
- Constructing a Structural Self-Interaction Matrix (SSIM)
- Designing a reachability matrix
- Determining factor levels through pairwise comparisons
- Developing the structural relationship model
- Designing and analyzing the MICMAC matrix

Data Collection and Sampling: In the thematic analysis phase, 15 semi-structured professional interviews were conducted with experts and executives in the fields of business management and marketing. Selection criteria included prior publications on competitiveness and at least 20 years of experience in the banking sector. Additionally, university professors with faculty positions and at least an assistant professorship were chosen as part of the sample. A questionnaire was employed to implement the structural-interpretive modeling (ISM) approach. Purposeful and theoretical sampling was adopted, distributing 15 questionnaires to research experts. After necessary follow-ups, 11 completed questionnaires were returned and used as the basis for the study. It is noteworthy that only the opinions of senior managers from private banks (Mellat, Tejarat, Ayandeh, Pasargad, Saderat, and Parsian) were considered. These managers had over 15 years of experience in banking research and business management. In this study, the Test-Retest Reliability method was used to ensure the reliability of the interviews: Test-Retest Reliability: To calculate test-retest reliability, a selection of sample interviews from the conducted interviews was chosen. The identified codes for each interview were compared at two different time intervals. The test-retest method is employed to assess the consistency of the researcher's coding, but it has a limitation: the results of the second test may be influenced by the coder's experience and memory, potentially affecting reliability. The codes that remained consistent across both time intervals were classified as agreements, while those that differed were categorized as disagreements. The reliability calculation is performed as follows:

$$\text{Reliability Percentage} = \frac{2 * \text{Number of Agreements}}{\text{Total Number of Data}} * 100$$

In this study, three interviews were selected as samples and were recoded after a three-week interval. The results are presented in the table below:

**Table 1.** Test-Retest Reliability Percentage

Test-Retest Reliability Percentage	Number of Disagreements	Number of Agreements	Total Number of Codes	Row (Interview)
./90	1	5	11	1
./60	2	3	10	5
./80	1	4	10	9
./77	4	12	31	Total

Since the test-retest reliability is 77%, which is above the acceptable threshold of 60%, the reliability of the coding process is considered acceptable.

#### 4. Data Analysis and Findings

**Step 1: Defining Dimensions (Elements).** Since the extracted themes in the thematic analysis method ultimately serve the Interpretive Structural Modeling (ISM) method and are structured according to its levels, this section presents the research findings based on the ISM methodology steps. Interpretive Structural Modeling (ISM) begins with identifying variables or themes relevant to the issue or subject. These variables are obtained either through a review of theoretical foundations or through expert interviews. In this study, comprehensive themes were derived from expert interviews using the thematic analysis method, as follows: Human resource management practices, human capital, international performance, stakeholder relationship management, internal performance, bank attractiveness, business model innovation, market share, adoption of a universal banking approach, business intelligence, organizational culture, technology infrastructure, knowledge management, marketing. Given that a detailed reflection of all coding is not feasible here, only examples of expert statements are provided. The following table presents sample codes and expert statements under each of the themes listed above.

**Table 2.** Sample Process of Extracting Comprehensive Themes

Comprehensive Theme	Organizing Theme	Basic Theme	Sample Expert Statements
Managing External Stakeholder Relationships	Customer Relationship Management	Customization of Services to Customer Needs	"...In fact, the rules of the game have changed, and now the competition is about attracting customers, so everything must be done to ensure customer satisfaction..." (A5)
		Customer Relationship and Experience Management	"...What banks need to do is create a positive experience for customers when using banking services..." (L8)
	Competitor Analysis	Adopting an Appropriate Competitive Strategy	"...To develop effective and practical competitive marketing policies, a bank must strive to gather as much information as possible about its competitors..." (K6)

#### Step 2:

1. Formation of the Structural Self-Interaction Matrix (SSIM): The identified enablers are entered into the Structural Self-Interaction Matrix. This matrix consists of the dimensions of the enablers and their comparisons. To determine the type of relationship between the enablers in this matrix, the relationships V, X, O, and A are used. 2. Formation of the Initial Reachability Matrix (RM): This matrix converts the relationship symbols from the SSIM into numerical values of zero and one (the rules for this conversion are presented in Table 3).

**Table 3.** Method of Converting Conceptual Relationships into Numbers (Owlia et al., 2021)

j to i	i to j	Conceptual Symbol
0	1	1V
1	0	2A
1	1	3X
0	0	4O

**Step 3: Forming the Final Reachability Matrix:** The Final Reachability Matrix is created by incorporating transitive relationships among variables. In this step, Secondary relationships between dimensions of the indicators are checked. If I leads to J and J leads to K, then I should also lead to K. If this condition is not met in the Initial Reachability Matrix, the matrix must be corrected by adding the missing relationships. Some zero values will be replaced by 1\* to indicate inferred relationships. After identifying secondary relationships and revising the matrix, the Final Reachability Matrix is obtained.

**Step 4: Determining the Level and Priority of Variables:** After determining the reachability set and the antecedent set for each element and identifying the common set, the variables are ranked. The reachability set for each element consists of the rows in the final reachability matrix where the value appears as 1, and the antecedent set consists of the columns where the value appears as 1. By obtaining the intersection of these two sets, the common set is obtained. Elements in which the common set is identical to the reachability set are assigned the first priority level. By removing these elements and repeating this step for the remaining elements, the level of all elements is determined.

<sup>1</sup> If the row index i leads to the column index i (the row index i influences the column index j).

<sup>2</sup> If the relationship between the row index i and the column index j is bidirectional (both influence each other).

<sup>3</sup> If there is no relationship between the row index i and the column index j (neither influences the other).

<sup>4</sup> If the column index j leads to the row index i (the column index j influences the row index i).

**Step 5:** Drawing the Interpretive Structural Model: This model is drawn based on the final reachability matrix and the determined levels.

**Step 6:** Analysis of Driving Power and Dependence (MICMAC Method): The row sum of values in the final reachability matrix for each element represents the driving power, and the column sum represents the dependence. Based on these two factors, four groups of elements can be identified: autonomous factors, dependent factors, linkage factors, and independent factors. Autonomous factors are those with low driving power and low dependence and are somewhat separated from other factors. Dependent factors have low driving power but high dependence. Linkage factors have both high driving power and high dependence; in fact, any action on these factors leads to changes in other factors. Independent factors have high driving power and low dependence and are referred to as key factors. Key factors fall into either the independent or linkage group.

**Research Findings:** First, the research factors are introduced, which include 14 criteria listed below:

Organizational Culture (C1), Technological Infrastructure (C2), Knowledge Management (C3), Marketing (C4), Human Resource Management (C5), Human Capital (C6), International Performance (C7), External Stakeholder Relationship Management (C8), Internal Performance (C9), Bank Attractiveness (C10), Business Model Innovation (C11), Market Share (C12), Adoption of Comprehensive Banking Approach (C13), Business Intelligence (C14) In this research, the self-interaction matrix is first created. Symbols used in the self-interaction matrix are those described in Step 1. This matrix is derived based on expert opinions, as shown in Table 2. Then, based on Table 4, the initial reachability matrix is formed using binary values (0 and 1). Next, transitive relations are established, leading to the formation of the final reachability matrix, which is presented in Table 3. All entries marked as 1\* in this table originally had a value of 0 in the initial matrix. Following this, based on the final reachability matrix and Step 4, the reachability set and prerequisite set are extracted, and the criteria are leveled, as shown in Table 4.

**Table 4.** Structural Self-Interaction Matrix (SSIM)

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
C1		0	0	0	X	V	0	V	V	V	A	V	0	0
C2			V	V	0	V	X	V	V	V	A	V	X	0
C3				0	A	0	V	V	V	0	A	V	A	X
C4					A	X	V	0	V	V	A	V	A	0
C5						V	V	0	V	0	A	V	A	0
C6							V	V	V	V	A	V	V	V
C7								X	V	0	A	X	A	A
C8									V	0	A	V	A	0
C9										A	A	V	A	A
C10											A	V	A	0
C11												V	V	0
C12													A	A
C13														V
C14														

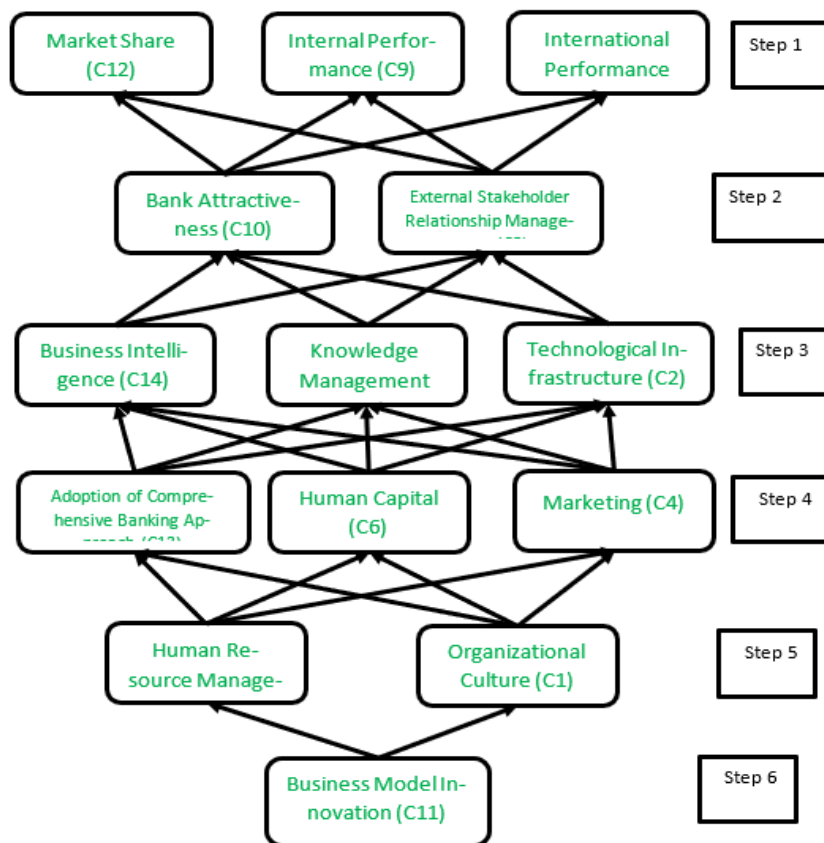
**Table 5.** Final Reachability Matrix

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	Degree of Influence
C1	1	0	1*	1*	1	1	1*	1	1	1	0	1	1*	1*	12
C2	0	1	1	1	1*	1	1	1	1	1	0	1	1	1*	12
C3	0	1*	1	0	0	0	1	1	1	0	0	1	0	1	7
C4	0	1*	0	1	0	1	1	1*	1	1	0	1	1*	1*	10
C5	1	1*	1	1	1	1	1	1*	1	1*	0	1	1*	1*	13
C6	0	1*	1*	1	1*	1	1	1	1	1	0	1	1	1	12
C7	0	1	1*	1*	0	1*	1	1	1	1*	0	1	1*	0	10
C8	0	1*	0	0	0	0	1	1	1	0	0	1	0	0	5
C9	0	0	0	0	0	0	1*	0	1	0	0	1	0	0	3
C10	0	0	0	0	0	0	1*	0	1	1	0	1	0	0	4
C11	1	1	1	1	1	1	1	1	1	1	1	1	1	1*	14
C12	0	1*	0	0	0	0	1	1*	1*	0	0	1	0	0	5
C13	1*	1	1	1	1	1*	1	1	1	1	0	1	1	1	13
C14	0	1*	1	0	0	0	1	1*	1	0	0	1	0	1	7
Degree of Dependence	4	11	9	8	6	8	14	12	14	9	1	14	8	9	

**Table 6.** Determination of Indicator Levels

	Access Set	Predecessor Set	Intersection Set	Step
C1	C1-C3-C4-C5-C6-C7-C8-C9-C10-C12-C13-C14	C1-C5-C11-C13-	C1-C5-C13-	5
C2	C2-C3-C4-C5-C6-C7-C8-C9-C10-C12-C13-C14	C2-C3-C4-C5-C6-C7-C8-C11-C12-C13-C14	C2-C3-C4-C5-C6-C7-C8-C12-C13-C14	3
C3	C2-C3-C7-C8-C9-C12-C14	C1-C2-C3-C5-C6-C7-C11-C13-C14	C2-C3-C7-C14	3
C4	C2-C4-C6-C7-C8-C9-C10-C12-C13-C14	C1-C2-C4-C5-C6-C7-C11-C13-	C2-C4-C6-C7-C13-	4
C5	C1-C2-C3-C4-C5-C6-C7-C8-C9-C10-C12-C13-C14	C1-C2-C5-C6-C11-C13-	C1-C2-C5-C6-C13-	5
C6	C2-C3-C4-C5-C6-C7-C8-C9-C10-C12-C13-C14	C1-C2-C4-C5-C6-C7-C11-C13-	C2-C4-C5-C6-C7-C13-	4
C7	C2-C3-C4-C6-C7-C8-C9-C10-C12-C13-	C1-C2-C3-C4-C5-C6-C7-C8-C9-C10-C11-C12-C13-C14	C2-C3-C4-C6-C7-C8-C9-C10-C12-C13-	1
C8	C2-C7-C8-C9-C12-	C1-C2-C3-C4-C5-C6-C7-C8-C11-C12-C13-C14	C2-C7-C8-C12-	2
C9	C7-C9-C12-	C1-C2-C3-C4-C5-C6-C7-C8-C9-C10-C11-C12-C13-C14	C7-C9-C12-	1
C10	C7-C9-C10-C12-	C1-C2-C4-C5-C6-C7-C10-C11-C13-	C7-C10-	2
C11	C1-C2-C3-C4-C5-C6-C7-C8-C9-C10-C11-C12-C13-C14	C11-	C11-	6
C12	C2-C7-C8-C9-C12-	C1-C2-C3-C4-C5-C6-C7-C8-C9-C10-C11-C12-C13-C14	C2-C7-C8-C9-C12-	1
C13	C1-C2-C3-C4-C5-C6-C7-C8-C9-C10-C12-C13-C14	C1-C2-C4-C5-C6-C7-C11-C13-	C1-C2-C4-C5-C6-C7-C13-	4
C14	C2-C3-C7-C8-C9-C12-C14	C1-C2-C3-C4-C5-C6-C11-C13-C14	C2-C3-C14	3

Formation of the Interpretive Structural Model: After determining the levels of each indicator and considering the final reachability matrix, the interpretive structural model is drawn. The final model is shown in Figure 1. This model consists of six levels, where the first level is the most influenced, and the sixth level is the most influential.



**Figure 1.** Indicator Leveling Model

MICMAC Analysis of Influence and Dependence Intensity: Using the influence and dependence intensity of each enabler (Table 2), the indicators can be categorized using the MICMAC analysis method (Figure 2). Based on this, the criteria of Organizational Culture (C1), Human Resource Management (C5), and Business Model Innovation (C11) fall under independent variables. These variables have low dependence and high driving power; in other words, they are highly influential but minimally influenced. The criteria of Stakeholder Relationship Management (C8), Internal Performance (C9), Bank Attractiveness (C10), and Market Share (C12) are categorized as dependent variables. These variables have strong dependence but weak driving power, meaning they are highly influenced but have little impact on the system. The remaining criteria fall under linkage variables. These variables exhibit both high dependence and high driving power, meaning they are both highly influential and highly influenced. Any minor change in these variables can lead to significant changes in the system. The criteria of Knowledge Management (C3) and Business Intelligence (C14) exhibit characteristics of both linkage and dependent variables.

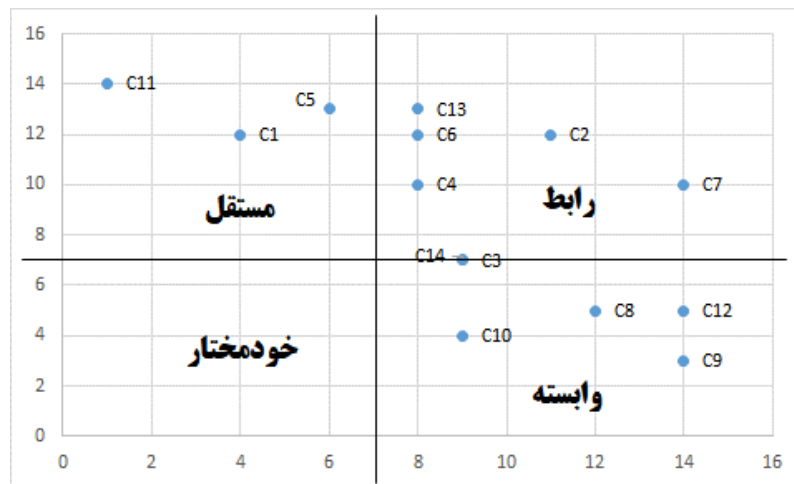


Figure 2. Influence and Dependence Power Chart

## 5. Discussion and Conclusion

In bank-centered economies, the banking system carries significant responsibility and is, in fact, one of the most crucial components of a country's economy. Banks can facilitate investment by providing financial resources and a suitable investment environment for economic sectors, thereby fostering employment and national production. The importance of the banking sector is based on the fact that banks serve as the primary channel for savings and credit allocation within an economy. In this study, based on expert interviews and a thematic analysis approach, fourteen key themes were identified: Organizational Culture (C1), Technology Infrastructure (C2), Knowledge Management (C3), Marketing (C4), Human Resource Management (C5), Human Capital (C6), International Performance (C7), Stakeholder Relationship Management (C8), Internal Performance (C9), Bank Attractiveness (C10), Business Model Innovation (C11), Market Share (C12), Adoption of a Comprehensive Banking Approach (C13), and Business Intelligence (C14). In the second phase of the study, using an interpretive-structural modeling (ISM) approach and based on the opinions of eleven experts, the identified components were classified into six levels, where the most influential components were placed at the first level and the most influenced components were categorized at the sixth level. The findings from the quantitative section show that the overarching theme of business model innovation plays the most significant role in predicting competitiveness. Based on this finding, it is suggested that creating and reinventing the business model of the country's banks can be effective for the banking system: Providing banking services tailored to the business model of each bank for target customers and avoiding the provision of all banking services by all banks to the entire society, logically responding to pressures arising from government requirements and other governing and regulatory institutions regarding the presence of state-owned and privatized banks in the most remote parts of the country due to the bank-centric nature of the economy, utilizing technology aligned with each bank's business model and avoiding the management of the traditional banking business within the framework of modern tools and electronic platforms, reasonable and logical attention

to changes and developments in the business environment and the issues and challenges of the new environment, and healthy and constructive competition among banks by focusing on specific customer groups and providing unique value propositions to them (Blue Ocean Strategy). In the second level of the model, the components of human resource management and organizational culture are positioned. Banks can enhance their competitiveness among rivals through the following approaches: improving the quality of their human capital by conducting continuous training programs for all employees, establishing a structured program for the development of human resource management, ensuring job security for employees through long-term contracts, implementing a performance evaluation system for human resource management and other employees based on the criteria specified in the balanced scorecard method, setting up a compensation and reward system aligned with employee performance, and providing opportunities for career advancement within the organization based on performance evaluations. In the third level, the adoption of comprehensive banking, marketing, and human capital is positioned. One of the strategies that can contribute to the realization of private banking is the development and institutionalization of the concept of integrated marketing and the establishment of an up-to-date and knowledge-based marketing system in banks and the country's banking system. Therefore, it is recommended that banks make the necessary efforts in this regard. Information technology plays a crucial role in the implementation and success of comprehensive banking. The quantitative section of the research (the proposed model) may undergo minor or major changes over time due to shifts in perspectives and conditions, making it impossible to generalize its results to the future. In fact, the proposed model is designed for the current conditions. There is a possibility of errors affecting respondents, such as leniency bias, in which individuals assign excessively high scores, or central tendency bias, which leads respondents to choose moderate scores in the questionnaire. These biases cannot be fully controlled by the researcher. Although the selection of experts considered factors such as experience, academic rank, field of expertise, and other necessary criteria in choosing a qualified specialist, due to the limited domestic research on the competitiveness of commercial banks from a managerial perspective, the selected experts generally did not have articles, books, or research projects directly related to the subject. This is because most research in the field of banking competitiveness has been conducted from an economic and stock market perspective, with less emphasis on the managerial viewpoint.

## References

- Abedi Ja'fari, H., Taslimi, M., Faghihi, A., Sheikhzade, M. (2011). Thematic Analysis and Thematic Networks: A Simple and Efficient Method for Exploring Patterns Embedded in Qualitative Data Municipalities). *Strategic Management Thought*, 5(2), 151-198. doi: 10.30497/smt.2011.163 [In Persian]
- Alexey T, Elena P, Ekaterina A, Irina G. (2019). Measuring management pathologies: the way to improve business performance. *International Journal of Public Sector Performance Management*, 5(2): 237-255.
- Amiri, H., Ghelich, V. (2020). Analysis of the role of banks' competitiveness in strengthening the banking industry; Evidence from selected Iranian banks. *Basij Strategic Studies*, 23(88), 159-189. [In Persian]
- Atefi A, Fathi Z. (2020). Investigating the effectiveness of financial health indicators and symbols of banking financial crisis, *Quarterly Journal of Financial Engineering and Securities Management*, 14 (42), 333-361.
- Azevado, S., Carvalho, H., & Cruz-Machado, V. (2013). Using Interpretive Structural Modelling to Identify and Rank Performance Measures: An Application in the Automotive Supply Chain. *Baltic Journal of Management*, 8(2), 208-230.
- Berger, A. N., Kravitz, T. A., & Shibus, L. (2022). The many facets of bank competition: Evidence from an extraordinary dataset. Available at SSRN 4030784.
- Boyatzis, R. E. (1998). *Transforming Qualitative Information: Thematic Analysis and Code Development*. Cleveland: Sage Publications.
- Braun, V., & Clarke, V. (2006). Using Thematic Analysis in Psychology. *Qualitative Research in Psychology*, 3(2), 77-101.
- Carstens, A. (2018). Big tech in finance and new challenges for public policy. speech to FT Banking Summit, 2.
- Dias, C. G. (2020). Bank competition and stability in Portugal (Doctoral dissertation, Instituto Superior de Economia e Gestão).
- Egbendewe A Y, Oloufadi D K. (2019). Good institutions and banking sector competitiveness: A semi-parametric evidence. *Finance Research Letters*, 101342.
- Elmansori, E., & Al-Hindawi, A. (2022). The impact of organizational change strategies on competitive advantage in commercial banks in Al-Bayda City-Libya. *International Journal of Finance & Banking Studies* (2147-4486), 11(1), 85-97.
- Fakorsaghih A, Sadeghi F. (2015). Investigating the role of mediators of sustainable marketing and market orientation in the effect of internal marketing on performance (Case study: Bank Mellat Bank, Mashhad), *Business Management*, Faculty of Management, University of Tehran, 8 (3): 680-659.
- Farokhi, S., Roghanian, E. and Samimi, Y. (2018). Investigating causal linkages and strategic mapping in the balanced scorecard: A case study approach in the banking industry sector. *Journal of Industrial Engineering and Management Studies*, 5(1), 1-25. doi: 10.22116/jiems.2018.66500

- Fedyshyn M F, Abramova A S, Zhavoronok A V, Marych M G. (2019). Management of competitiveness of the banking services. *Financial and credit activity: problems of theory and practice*, 1(28): 64-74.
- Kazarenkova. (2006) Methodical and Organizational Approaches to Management of Competitiveness of Bank in the Regional Market of Credit Services for the Population. *Finance and Credit*, 29, 44-49.
- Khatibi S; Salem A. (2015), Assessing the Capability of Islamic Banks in Competition with Conventional Banks from the Perspective of Comparing Cost Efficiency, *Economic Research Journal*, 15 (57): 69-86.
- Louhichi A, Louati S, Boujelbene Y. (2020). The regulations–risk taking nexus under competitive pressure: What about the Islamic banking system?. *Research in International Business and Finance*, 51, 101074.
- Mirnezami, S., Ghasemi, B., Vadadi, A., Aligholi, M. (2021). Develop a Model of Competitiveness of Iranian Banks with Emphasis on Human Capital Education. *Iranian Journal of Educational Society*, 14(1), 38-50. doi: 10.22034/ijes.2021.243389 [In Persian]
- Mousavi, S. F. , Azar, A. and Khodadad, S. H. (2021). Success factors of innovation management in the banking industry using the grounded theory approach. *Journal of Industrial Engineering and Management Studies*, 8(2), 138-159. doi: 10.22116/jiems.2022.138127
- Owlia, M. S. , Roshani, K. and Abooei, M. H. (2021). Analysis of interaction among the intellectual capital components using interpretive structural modeling and MICMAC approach. *Journal of Industrial Engineering and Management Studies*, 8(2), 207-232. doi: 10.22116/jiems.2022.138132
- Patton, M. (2002). *Qualitative Research and Evaluation Methods*. Thousand Oaks: California.
- Sabharwal, S., Fox, A. D., & Vives, M. J. (2019). The use of inferior vena cava filters in spine trauma: A nationwide study using the National Trauma Data Bank. *The Journal of Spinal Cord Medicine*, 42(2), 228-235.
- Su, C. W., Qin, M., Rizvi, S. K. A., & Umar, M. (2021). Bank competition in China: a blessing or a curse for financial system?. *Economic Research-Ekonomska Istraživanja*, 34(1), 1244-1264.
- Sukkar, A. A., Hawasli, O., & Al-Samman, S. (2020). Organization strategic orientation: Special focus on Community banks and Generation Z.
- Thakkar, J., Deshmukh, S., Gupta, A. and Shankar, R. (2007), "Development of a balanced scorecard: An integrated approach of Interpretive Structural Modeling (ISM) and Analytic Network Process (ANP)", *International Journal of Productivity and Performance Management*, Vol. 56 No. 1, pp. 25-59.
- Thuy, M. T. P., & Duong, M. B. (2021). Factors Affect Competitiveness of Vietnamese Commercial Banks. *Open Access Library Journal*, 8(7), 1-8.
- Tseng, M. L. (2013). Modelling Sustainable Production Indicators with Linguistic Preferences. *Journal of Cleaner Production*, 40, 46-56.
- Vives, X., & Ye, Z. (2021). Information technology and bank competition. CEPR Discussion Paper No. DP16258, Available at SSRN: <https://ssrn.com/abstract=3886727> .