

Original Research Article

Pathology of Business Model of Iranian Commercial Banks

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Despite the importance of the business model in implementing strategy, this issue is less addressed than strategy. This important issue regarding banks' business model has received less attention, and research in Iran and other countries has caused a deprivation of knowledge. In addition to the scientific pathology of the business model in Iranian commercial banks, the present article seeks to determine the weights of importance and prioritization of the main categories. It also prioritizes and determines the importance of each of the concepts of the main categories of the commercial banking business model. The research method is applied in terms of results and descriptive in terms of purpose and quantitative-qualitative from the data dimension. The research method's strategy in the qualitative part is the grounded theory, and in the quantitative part is the process of hierarchical analysis. The data analysis method in the qualitative part is the coding method, and the quantitative part is based on pairwise comparisons and incompatibility rate analysis. The research community is the experts of commercial banks, and its examples are Mellat, Tejarat, Melli, Sepah, Saderat, Shahr, Eghtesad-e-Novin, and Ayandeh banks. The sampling method is a purposeful judgment with the snowball method and data collection tools in the qualitative part of the interview and review of documents in the quantitative part of the questionnaire. The research findings led to identifying the pathology of Iranian commercial banks' business model in 7 categories and 36 concepts, which are prioritized and contributed based on the importance and role of each of them in the business model.

Keywords: Bank; Business Model; Pathology; Hierarchical Analysis Process; Grounded Theory.

JEL Classification: C44, E50, M1

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1 Introduction

Profit organizations, including commercial banks, are created to profit and seek to maximize returns throughout their lives. Although the amount of profit earned can change for various reasons, it can be said that the survival of these organizations lies at the heart of their most important goal, which is to earn a sustainable profit.

Organizations pursue their goals through a definite business model, written or unwritten, in managers' minds. Banks are no exception, but as the business environment becomes larger and more complex, the need to develop a business model that simplifies the organization's activities' type and manner becomes increasingly important.

A business model explains the logic of how an organization creates, delivers, and acquires value. (Osterwalder & Pigneur, 2010). According to Osterwalder et al. (2005), Business models help to capture, visualize, understand, communicate and share the business logic.

The business model concept provides the basis for creating tools and frameworks to assist business managers and researchers reviewing business models. These tools have the following potential functions:

- Understanding the components and their proper interactions and sharing them.
- Implementation analysis to measure performance, observe and compare with other
- Management; the concept of a business model helps design, plan, and manage the changing logic of creating company value.
- Innovation in the business model; assists in predicting new business models through simulation and structured design
- Show models (Rana et al., 2017, 76).

Therefore, examining the business model in organizations, especially financial organizations such as banks created with profitability, is very important from the mentioned aspects. In addition to showing how to create and deliver value to customers, the business model shows how an organization gains (and to what extent). Usually, in banks, value creation for shareholders manifests itself in share value, including the amount of profit earned. In other words, the business model must be profitable, and this requires that all elements and components of the model and the interactions between the elements must be carefully selected and applied under environmental conditions.

Significant changes in the banking industry, including banking at the international level or banking in Iran, such as regulatory changes, the arrival of new technologies, and digitization, have emerged. While changing the banking model globally, redefining banks' business models as one of the requirements is stated, which is done continuously. In Iran, although the introduction of private banks from 2001, alterations in the way services were introduced, the delivery of services is, typically, a copy of one or two banks, and the business model is not fundamentally changed.

The intensity of the competitive environment and change of information technology has led to increased customer expectations in receiving bank services. Furthermore, the internal and external factors affecting the business of banks have finally led to the deterioration of the relative inefficiencies that are embodied in the form of fictitious assets, frozen assets, assets and liabilities gap, income and cost imbalance, resource input stream imbalance, increasing nonperforming loans, etc.

Many of the world's major consulting firms, such as Deloitte, emphasize that it is necessary to review the banks' business model to adjust to these changes due to the creative changes that are taken and the future banking trends. It is critical since the traditional business model of banks in Iran is based on loss & the above-mentioned issue also increases the importance of this matter. As an entity monitoring system in Iran, the Central Bank of the Islamic Republic of Iran considers improving banks' business model as a major concern of the banking system reform program. From the standpoint of the central bank, the banking system's problems that have represented themselves in the imbalances of income - cost, assets - liabilities, and the input and output current fund as the short-term and the medium-term issue due to structural and institutional conditions, require structural reforms. Each plan, the way to solve this problem, to be efficient, must necessarily entail modifying the business model of banks. Without doing this, reforming the banks' balance sheets would be a short-term achievement. Because the unprofitable business model of banks, or in other words, the imbalance of profits and losses, can unbalance any quality balance sheet. (CBI, 2017).

Most commercial banks in Iran are not in a good financial position. If we eliminate the impact of temporary factors such as the foreign exchange assets and liabilities and the impact of inflation on the revaluation of assets and stock price and investment growth, far more inappropriate conditions prevail in these banks' financial statements. Although many factors can be mentioned as the source of the current situation of banks (both public and private banks), from the perspective of the business model, on the one hand, a large part of

the losses of banks' financial statements is due to their traditional business model. On the other hand, the trends of economic, social, and technological changes and the emergence of non-banking solid competitors (such as financial technologies), both globally and domestically, force banks to survive in an industry of competition and speed. Within the model framework, they think of their business and take action.

Table 1 shows the amount of capital, equity, profit/losses for the year, and accumulated profit /losses of 5 major commercial banks of the country for the fiscal year ending March 20, 2019, and 2018:

Table 1

Performance status of the 5 large commercial banks (billion Rials)

Bank	Capital		equity		profit/losses for the year		accumulated profit /losses	
	2019	2018	2019	2018	2019	2018	2019	2018
1	198,566	198,566	-262,278	-128,287	-145,940	-84,540	-521,958	-376,019
2	247,667	119,532	134,866	16,021	-11,746	-29,329	-129,673	-117,927
3	50,000	50,000	260,465	174,669	25,110	119,273	22,891	81,496
4	223,926	223,926	138,449	134,376	2,314	-5,521	-107,199	-109,513
5	175,354	175,354	162,392	145,941	2,500	-27,962	-77,948	-80,449

Source: Audited financial statements

Thus, reviewing the existing business model or designing a new business model in the first place requires accurate pathology of the existing model so that by relying on it, we can first understand the factors that create the existing conditions. Then by eliminating the pathologies and considering the changes in the banking industry and the future of this industry, and the process that is ahead, a new model can be created that will gradually improve the current situation and adapt to industry changes and customer expectations. Given the above, this research's main issue is the pathologies of commercial banks' business model to provide these banks and provide a suitable and correct view to developing a desirable business model and appropriate to their capacities and capabilities. In this article, the main issue expressed in the form of 3 main questions are:

- 1) What are the pathologies of the business model of Iranian commercial banks?
- 2) What is the weight of the main categories of the business model of Iranian commercial banks?
- 3) What is the priority of the main categories of the business model of Iranian commercial banks?

Therefore, due to the importance of studying this issue, this study's main purpose is to identify the pathology of the business model of commercial banks in Iran.

After expressing the introduction in the first part, the theoretical basis of the research and the research methodology are presented in the second and third parts.

The fourth section deals with the research findings, and the fifth (final) part of the article contains conclusions and policy implications.

2 Theoretical Basis and Background

2.1 Definitions and Concepts of Business Model

The business model is fundamental to any organization because it provides powerful ways to understand, analyze, communicate, & manage strategy-based options. There has been a growing interest in the business model (since business modeling flourished in the late 1990s with high-tech businesses) in defining the concept and providing more insights into the business model. For example, some have tried to define the business model concept (Timmers, 1998, Osterwalder et al., 2005, Shafer et al. 2005, Al-Debei et al., 2010), some have identified the relationship of the business model to the information system (Hedman & Kalling, 2003), business concepts such as company strategy (Mansfield & Fouri, 2006), business process modeling (Gordijn et al., 2000), and some have identified its components (Mahdavan, 2010, Gordijn & Ackreman, 2001, Chesbrough & Rosenbloom, 2002, Pateli & Giaglis 2003) (Mutaz et al., 2010, 359-360).

Despite the widespread use of the term business model in academic and non-academic literature, there is a gap in its clear definition and meaning, particularly its consensus. Although many scholarly articles have been written on the business model, no theoretical common ground has been established on the business model's definition. The concept of a business model has been considered in various fields, but it is still criticized for its ambiguity and lack of sufficient consensus on the definition and components. Given the above, a number of definitions are presented in the literature. At the end of this section, the definitions are given in the form of a table for easier understanding.

According to Timmers (1998), the business model includes introducing different actors, their roles, income, and income sources. According to this definition, the business model consists of three components: product, information flow, and necessary service (Malek Poor Farsadi, 2008). According to Osterwalder et al. (2005), a business model is a conceptual tool

that includes a set of elements and their relationships and makes it possible to demonstrate the business logic of a particular firm (Tomkus, 2014).

A business model is a set of activities to create, deliver and acquire value, and changes in these models are called business model innovation (Foss & Saebi, 2018). The business model determines how and when to do the activities, what resources are needed to carry out the activities, and what position we take in relation to the process performed to serve the interests of our customers and ourselves (Sepehri & Behmardi, 2006).

Amit and Zott (2001) state that the business model depicts the content, structure, and dominance of transactions designed to create value through model innovation as a set of interrelated decision variables to create a sustainable competitive advantage in defined markets (Velu & Khanna, 2013, Markides, 2015). According to Shafer (2008), a business model is the logic of a company's capabilities along with the strategies that the company chooses to create and gain value in a value network (Malek Poor Farsadi, 2008). Identifying the customer's unmet needs, identifying the technology and organization that will meet those needs & gaining value from activities are important functions of the business model. Without the right balance between value creation, delivery and acquisition, the model will not work long. In short, the business model describes the logic by which customer service and revenue are generated (Teece, 2018).

The business model describes how a company is positioned in the value network or value chain and how it converts inputs into outputs to achieve its goals (Ritter & Lettl, 2018). Business model innovation is a change in the architecture of a company's business model or its new elements and leads to visible changes in its actions towards customers and partners. (Bouwman et al., 2019)

As noted, despite the relative commonalities that experts have in defining the business model, it is not possible to arrive at a completely uniform definition in this regard. Therefore, Table 2 provides a selection of business model definitions to facilitate comparability of definitions.

Table 2

A selection of business model definitions

Author (Year)	Name	Definition of Business Model
Timmers (1998)		A business model is an architecture of product, service, and information flow that includes a description of the various business actors and their plans; A description of the potential benefits for different business actors; "A Description of Revenue Sources."
Mahdavan (2000)		A business model is a combination of three vital flows and includes value streams for business partners and buyers, revenue streams, and support flows.
Raya (2000)		A business model is a way for a company to do business that can sustain itself and generate revenue. The business model describes how a company makes money by identifying where it's in the value chain.
Afva & Toki (2001)		A business model is a way for a company to build and use its resources to provide better value to its customers than its competitors and make money. A model enables a company to have a sustainable competitive advantage and perform better than its competitors in the long run.
Amit & Zott (2001)		The business model is the content, structure, and governance of exchanges designed to create value by exploiting business opportunities.
Top Scott (2001)		A business model refers to the core architecture of a company, particularly how the company uses all relevant resources (not just resources within the company) to create different value for customers.
Chesbrough & Rosenbloom (2002)		The business model provides a coherent framework that considers technological and potential features in inputs and converts them into economic inputs through customers and markets. The business model describes how a company makes money by identifying where it's in the value chain.
Moris et al. (2005)		A business model is a brief presentation of how an interrelated set of decision variables in investment strategy, architecture, and economies is demonstrated to create sustainable competitive advantage in defined markets. The business model has six basic components: value proposition, customer, internal processes/competencies, external positioning, economic model, and personal / investment factors.
Shefer et al. (2005)		A business model is the logic of a company's capabilities and the strategies that the company chooses to create and gain value in a value network.
Johnson, Christensen, & Kagerman, (2008)		Business models consist of four interconnected components that work together to create and generate value. They are customer value propositions, profitability formulas, key resources, and key processes.
DeMille and Lecoke (2010)		In general, a business model's concept refers to explaining the interpretation between the differences between the components of a business model or its constituent blocks to provide a proposition that can create value for customers and the organization.
Osterwalder & Pigneur (2010)		A business model is a logic of how an organization creates, delivers, and acquires value.
Tiss (2010)		In short, a business model defines how a company creates value and presents it to customers, and then converts the payments received into profits.
Zott & Amit (2001)		A business model can be seen as a form of how a company does business and delivers value to stakeholders (such as core companies, customers, partners, etc.) and how agents and product markets connect.
Jorge & Bock (2011)		A business model is the design of organizational structures to realize business opportunities. Three dimensions of organizational structures are evident in our definition; Resource structure, exchange structure, and value structure.

Source: Fielt (2013)

Investigating the definitions shows that value creation is a central issue in all definitions. Businesses must present this value to customers in some way. In return for value creation, it must normally acquire value for survival and profitability. Thus, as Osterwalder and Pigneur (2010) stated, a business model can be defined as "the logic of how an organization value creates, presentation & accusation."

2.2 Framework & Components of the Business Model

The subject is closely related to the business model's definitions, the constitutive elements of the model that explain what the business model is made of. These elements in subject research are mentioned in other ways, e.g., building blocks, components, key questions, tasks. (Osterwalder & Pigneur 2010), (Pateli and Giaglis, 2004), (Moris et al. 2005), Chesbrough & Rosenbloom (2002). The business model elements are sometimes referred to as part of the model definition and, in some cases, in the form of lists, frameworks, or ontology (Fiel, 2013, 92).

Perhaps, for the first time, Drucker (1954) was able to form a business model concept and introduce the business model's core elements. "The goal of business is to create the customer." "The business needs to control its resources to achieve its goal of creating the customer." "Who is the customer?" "... What is the customer buying?" What is the value for the customer? Drucker stated, "The only complete analysis of activities can determine what needs to be done, what types of tasks are interdependent and what emphasis on any activity within the organization's structure." According to Drucker, the business model's essential elements are customers, value statements, product/service, and value creation mechanisms (Fjeldstad & Snow, 2018). Osterwalder and Pigneur (2010) introduce the nine elements of the business model in the Business Model Generation book (Osterwalder & Pigneur, 2010).

Customer Sections, Suggested Values, Channels, Communication with Customer, Incomes Currents, Key Resources, Key Activities, Key Partners, Cost Structure.

2.3 Business Model, Business Strategy, and Business Architecture

The literature review shows how the term "business model" is often used as "business strategy" or as a strategy component or, in some cases, even as a cover-up that sets up a strategy. Figure (1) shows the relationship between business model and business strategy through the organizational level valve.

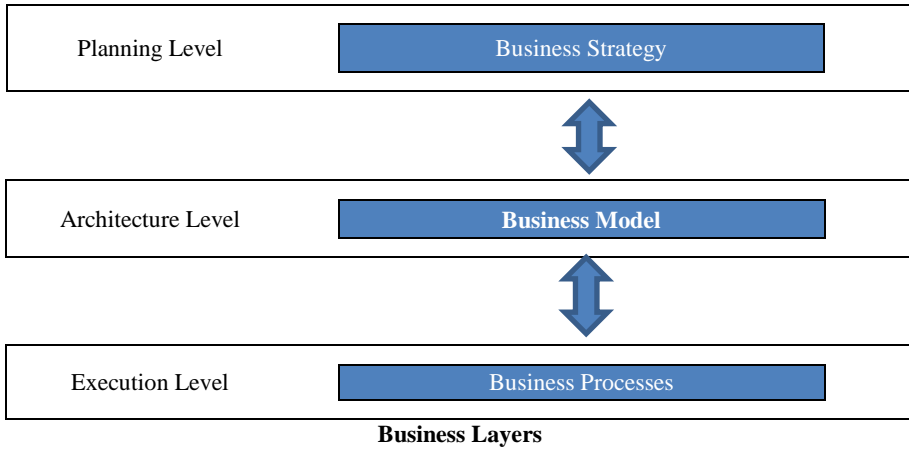


Figure 1. Different levels of a Business & between Levels
 Source: Rana et al. (2017, 79)

2.4 Background

Studies carried out by the researcher showed that research with this issue and the title of abroad had not been done, and in Iran, the study is very few or has not been carried out by banks and has no external publication. However, the researches are referred to as follows.

Mellat Bank Research and Strategic Transformation Center (2015) has identified the shortcomings of banks' business model in eight main axes: 1. Non-segmentation of customers 2. Broad sales channel 3. Product Based 4. Major revenue generation from common revenue 5. Collateral in lending 6. Separate supply chain 7. Decentralization of credit risk 8. The concentration of operational risk.

Keshavarzian Peyvasti & Motalebi Asl (2018) introduced and explained business models and challenges of the banking system in Iran to compile and design a business model canvas for a hypothetical bank in the country, and also they have taken a comprehensive banking approach.

Keshavarzian Peyvasti and Motalebi Asl (2017) designed and analyzed the country's comprehensive banking business in the past, present, and future stages. Also, they have analyzed the current situation of banks.

Seppandarand et al. (2016) studied "comparing the dimensions of banking business model in Iran with a comprehensive banking model." They have found that these models have root differences across all aspects of the business model, i.e., the next nine dimensions present in the research. In this study,

some kind of pathology of Iranian commercial banks' current business model has been proposed in all aspects of the business model, and commercial banks must migrate to a comprehensive banking model.

Sanjari et al. (2016) directed toward monitoring the performance of the Maskan bank. To compute each criterion's score, radar logic has been used to score the elements of the approach, current, evaluation, and revision. The aspect of the approach with suitable features and integrity is the current element with settlement and systematization properties. Finally, the measurement element is measured and reviewed with the measurement, learning, and improvement characteristics. The results showed that the highest score achieved in the field of employees is 68 percent and the lowest score in the range of processes is 56 percent.

The Price Waterhouse Coopers (PwC) Institute, as one of the four important consulting firms in the world, identified the three main challenges for banks in America's continental (regulatory compliance, attracting new customers, and increasing Customer profitability), in Europe (regulatory compliance, attracting new customers and losing trust), in Asia-Pacific (attracting and retraining of talents, attracting new customers and Newcomers to the market) and in emerging markets (attracting new customers, attracting and retraining of talents and Newcomers to the market) (Garvey et al., 2014).

As it is clear from the background study, no specific research has been done on the pathology of the banks' business model. Little research has been done on banks' business models to provide a business model with a comprehensive banking approach. Therefore, the present study seeks to fill the existing knowledge gap in identifying the pathologies of the business model of commercial banks.

3 Methodology

Paper Research Methodology is practical from the perspective of the result. From the point of view of review, it is descriptive and also from the point of view of data is qualitative – quantitative. In fact, in the paper with qualitative tools and methods, including the interview, qualitative data are collected from the key attributes and analyzed. Then, to complete and make better decisions, it has been analyzed quantitatively and by determining each of their contribution and priority to the results. The use of hybrid research methods (qualitative-quantitative) shows that using these methods allows for a better understanding of phenomena. Therefore, a more comprehensive understanding of commercial banks' business models has been used in combination with qualitative and quantitative methods. In the combined

research designs, the researcher is trying to investigate the position of uncertain position. For this purpose, the collection of qualitative data carried out in this stage describes countless aspects of phenomena. With using this initial identification, it is possible to measure and prioritize the elements of the model. Then, in the next step, the researcher expresses them more comprehensively and tests them more accurately. In this study, however, qualitative data is given higher importance. Then, based on the findings from qualitative data, it tries to accumulate quantitative data to allow the findings' generalizability.

3.1 Research Strategy

The research strategy in the qualitative part is grounded theory (contextual theory). Because recognizing the pathologies of the business model in Iranian commercial banks lacks sufficient theoretical foundations and also because of the relevance of the research strategy to the situation, its efficiency, considering the people in an environment and understanding their true feelings & the complexities It and following a general explanation of the pathologies of the business model in Iranian commercial banks, so the method of grounded theory or underlying theory has been adopted for the research. The research strategy in the quantitative part of the process is hierarchical analysis.

Since the research seeks to use collective judgments and decisions, modeling a series of unstructured problems, measuring and quantifying a series of qualitative criteria, etc., the method of hierarchical analysis as the research strategy is considered in the quantitative part. It is depicted in the following figure of the general stages (qualitative and quantitative) of the research:

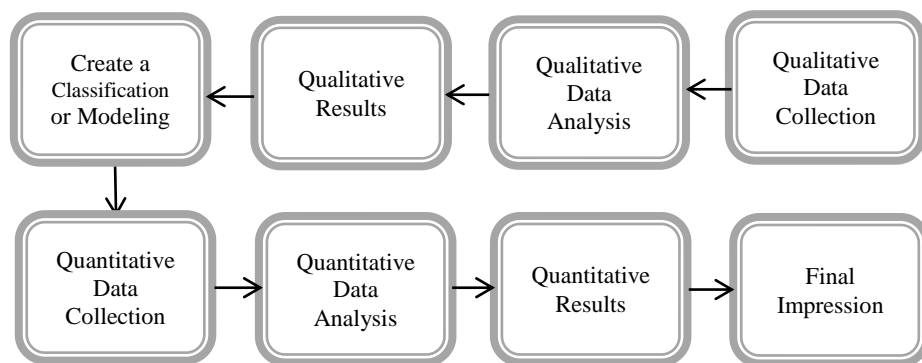


Figure 2. General Stages of Research
 Source: Research Findings

3.2 Society, Sample & Research Data Collection Tools

The research's statistical population is experts and specialists of commercial banks (including managers and experts). The qualitative section sample includes 19 experts with work experience in Saderat, Mellat, Sepah, Melli, Tejarat, Shahr, Ayandeh, Eghtesad-eNovin banks, and also the Ministry of Economic Affairs and Finance. Targeted (which is a non-random method) and selected by the snowball method. In this sampling method, the researcher uses his judgment to select the items he does best to answer the research questions and meet the research goal. Of course, two preconditions have been observed for selecting the samples, the acceptance criteria of two parameters: a) at least 10 years of work experience related to the research topic b) their knowledge of the business model and strategy issues, and their approval and introduction by a qualified person. The statistical sample in the quantitative section, based on which the factors are prioritized, is 15 people. The collection tools are as follows:

A) In the qualitative part: The data collection method in the article is both primary and secondary sources. Using authoritative books and articles as library resources is the most important method of collecting data from secondary sources. In addition to collecting information and various theories in the field of literature and research background, this method has been used to identify and explain pathologies' various components. In primary sources, the most important data collection method is semi-structured interviews and review of documents.

B) In the quantitative part: first, the research decision tree model is extracted by qualitative data. Then with the primary questionnaire related to calculating Cronbach's alpha coefficient, its validity is confirmed. Then with the secondary questionnaire related to determining the share of model factors (based on parallel comparisons) are embedded in the hierarchical analysis process. Therefore, the tool and method used in the quantitative part is a questionnaire. The number of initial questionnaires to determine the validity of the qualitative model based on Cronbach's alpha coefficient was distributed among the qualitative section's statistical sample (19 key informants of the research). Fifteen questionnaires were received, and based on which the Cronbach's alpha coefficient was calculated in the analysis section, and data analysis is described in detail. The number of quantitative section questionnaires (secondary questionnaire) to determine the priority to the number of statistical samples of the quantitative section to 12 questionnaires was collected and analyzed with expert Choice software, and the share and priority were determined.

4 Results Findings

4.1 Quality Section Findings

The data analysis method in grounded theory and the definition of concepts, categories, and achievement of the theory is done through data coding. The method used in research coding is consistent with the coding technique. In this method, there are three modes of open, axial, and selective coding. Open coding is an analytical process by which concepts are identified and their dimensions are discovered in data. At this stage, the researcher forms the basic categories of information about the phenomenon under study by segmenting the information. He connects the categories to all the data collected. Therefore, concepts are the basic units of analysis because the theory is formed, and the actual data collected from the mental image and conceptualization of the data. Open coding refers to the work that deals with the classification of phenomena from short notes, the result of which is the naming and classification of concepts. Then the concepts are classified. This classification occurs when it is intended to compare concepts to identify similar items. These concepts are then aggregated to form a larger system. The material expressed in the interview is examined several times, and its key phrases are discovered and its concepts extracted. Table 3 lists some of the initial codes extracted from the interviews.

Table 3
Sample of codes extracted from interviews

Row	Interview Text (key points)	Primary Code
1	For every product and service we want to offer, we have to get the central bank's approval.	The need to obtain the approval of the Central Bank
2	Banks' most important income source is the operating profit margin (the difference between interest on payment facilities and deposits).	Focus on shared income
3	One of the problems is focusing on whole numbers and taking care of resources and spending.	Focus on gaining market share
4	It is wrong that all banks provide facilities to all industries and customers.	Facilitating all industries and customers
5	Banks cannot solve their customers' problems in a short time.	Inability to meet the immediate needs of customers

Source: Research Findings

After the initial coding, the researcher has extracted the secondary codes that are the basis for forming research concepts, of which Table 4 is an example.

Table 4
Sample of secondary codes extracted from interviews

Row	Primary Code	Secondary Code
1	The need to obtain the approval of the Central Bank Regulatory restrictions on the provision of direct non-banking services The grammatical nature of most policies	Limitations of laws and regulations and compliance requirements
2	Perform some banking operations by financial technologies A decrease in bank revenues with the arrival of financial technologies Attracting bank customers by financial technologies	Entry of non-bank competitors

Source: Research Findings

Axial coding links categories to subcategories and links categories at the level of features and dimensions, and the reason for naming it axial is that coding takes place around the axis of a category. At this stage, the categories and dimensions resulting from open coding are formulated and put in place to create increasing knowledge about relationships. Accordingly, the concepts were extracted from the secondary codes and the main categories of research from the concepts as described in Table 5:

Table 5
Compilation of concepts and categories

Row	Conceptions	Categories
1	Improper segmentation of target customers according to the capabilities of the bank Provide all services to all customers regardless of profitability Unscientific, non-integrated, and mostly one-sided (from internal to external) needs assessment Extensive and variable needs and low loyalty of Z generation customers	Customers
2	Similar and non-competitive products and services Inadequate value proposition to customer needs (lack of customization) Inability to fully and instantly cover customer needs. (No value package) Insufficient attention to improving the customer experience	Suggested Value
3	Lack of serious and tangible separation of service distribution channels tailored to customer segments. Lack of integration of customer service channels (Omnichannel) Axis branch in large banks and lack of specialized services in branches Cultural and regulatory problems in banks' communication with customers due to unconventional communication flaws. Non-personal, non-specialist, and weak communication with the customer Lack of full use of customers' business capacities (customers club)	Value Delivery Channels
4	Resources of deposits and fixed assets as the most important sources instead of knowledge and partnership sources Weak infrastructure and unfavorable architecture in information technology Insufficient attention to big data analysis as a key source Insufficient attention to brand identity Unproductive and fixed assets	Key Resources
5	Disproportionate and unstable key partners Lack of proper understanding of banks about the need to cooperate with other actors in the ecosystem. (Competition- Cooperation) Regulatory constraints on the selection of strategic partners	Key Partners
6	The gap between the development and implementation of customer-centric strategies in different parts of the bank (strategy implementation) Focus on gaining market share (resources) regardless of efficiency and profitability. Poor implementation of corporate governance Challenges of human resource management Not using new digital technologies based on artificial intelligence Integral relationships between business model elements Non-Integrated Asset-Debt Management The effect of macroeconomic variables and external factors on the business of banks	Key Activities
7	High cost of deposit interest High administrative-personnel costs High infrastructure costs Unstable income flows Threats to non-bank competitors (financial technologies) in attracting traditional banks' revenues Lack of development of unrelated revenues and disproportion of service fee rates to the cost of services.	Financial Structure

Source: Research Findings

To evaluate the foundation data theory, 4 criteria: Adaptation and appropriateness, Understandability, Generality, Control, is suggested that all 4 above-mentioned criteria have a positive answer in terms of key informants of the research and the researchers, which shows the validity of the research in the qualitative part. In other words, the interconnectedness of research concepts and categories has been confirmed, which indicates the validity of its findings. On the other hand, the pathology's final causes to the business model of commercial banks were extracted and sent to 19 people (key informants of the research) in the form of a preliminary questionnaire to estimate the validity of the results, and 15 items were collected. To estimate the validity of the answers, the Cronbach's alpha coefficient was calculated using the alpha coefficient method and the following formula:

$$r_a = \frac{j}{j-1} \left[1 - \frac{\sum S_j^2}{S^2} \right]$$

In the above formula, j is the number of questions S_j^2 is the variance of the question and S^2 is the total variance.

The calculated alpha coefficient, which is taken from the data of 15 people, was 0.793, which means that the initial questionnaire has sufficient validity. In other words, the feedback is not due to randomness but to the effect of the variables that have been tested, which is the validity of the questionnaire. The qualitative part of the research results is another sign of the validity of the findings of the qualitative part.

4.2 Quantitative Section

In this research, the data analysis method is based on integration through the structure of hierarchical analysis, mathematical calculations, pairwise comparisons, incompatibility rate analysis, and finally, the sensitivity analysis of criteria weights. This method includes steps such as a) constructing a hierarchy and decision tree, b) performing pairwise comparisons, c) calculating data validity, and analyzing incompatibility rates. All comparisons in the hierarchical analysis process have been done in pairs, analyzed, and validated by the expert Choice software.

Figure 3 shows the overall decision model tree of the business model's breakdowns for each segment.

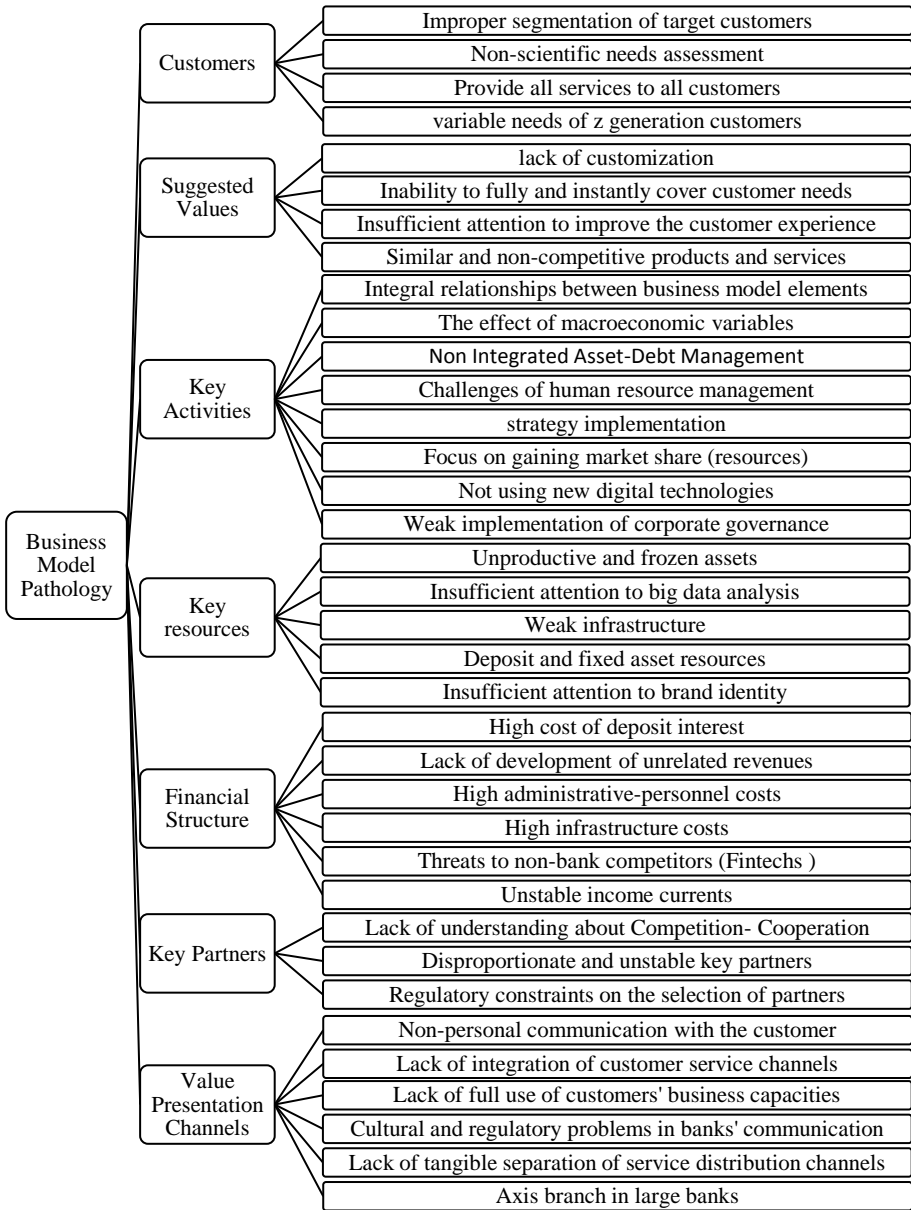


Figure 3. General Tree Model Decision Business Model pathologies Separate by Each Section
 Source: Research Findings

4.3 Calculating Data Validity (Incompatibility Rate)

The mismatch rate is an indicator by which the validity of survey experts' answers is estimated and matched in the form of pairwise comparisons, which we calculate in the following way:

If $\lambda_1, \lambda_2, \dots, \lambda_n$ is the Eigenvalue of the pairwise comparison matrix A , the sum of its values is n . The maximum eigenvalue λ_{max} is always greater than (or equal to) n .

If the matrix elements deviate slightly from the compatibility state, the eigenvalues will also deviate slightly from their compatibility state.

$$A \times W = \lambda \cdot W$$

Where λ_{max} is the specific vector and the specific value of the matrix A , respectively. There has been an equal eigenvalue (the largest Eigenvalue), and in other cases, it can be equal to zero. So, in this case, we usually write:

$$A \times W = n \cdot W$$

If the pairwise comparison matrix A is not compatible, λ_{max} is slightly different from n that we can write:

$$A \times W = \lambda_{max} \cdot W$$

The incompatibility index (I.I) is also in the following formula: (72-73), 2005.

$$I.I = \frac{\lambda_{max} - n}{n - 1}$$

The incompatibility rates obtained by the software are shown in the table below. It is the combined incompatibility rates of each of the variables below 0.1, which indicates their validity.

It should be noted that the incompatibility rate of the general model is also 0.02.

Table 6

Calculate the combined incompatibility rate of different model variables

Row	Variable	Incompatibility rate obtained	Maximum compatibility rate possible
1	Customer	0.03	0.10
2	Suggested Values	0.00	0.10
3	Value Presentation Channels	0.05	0.10
4	Financial Structure	0.05	0.10
5	Key Partners	0.00	0.10
6	Key Activities	0.02	0.10
7	Key Resources	0.01	0.10

Source: Research Findings

According to the data analysis as described above, the research findings in the form of answers to the questions are as follows:

Answer the first question:

The first question was, what are the pathologies of the business model of Iranian commercial banks?

According to 15 experts who have completed the questionnaires, among the 36 concepts related to different sectors, "Improper segmentation of target customers according to the capabilities of the bank," "Mismatch of proposed values with customer needs (lack of customization)" and "Inability to fully and instantly cover customer needs (failure to develop a value package)" are the three most important criteria that have been among all criteria extracted in interviews.

Subsections	Weight	Prioritization
Improper segmentation of target customers	0.05653	
lack of customization	0.05473	
Inability to fully and instantly cover customer needs	0.05044	
Integral relationships between business model elements	0.04637	
Insufficient attention to improve the customer experience	0.04391	
Unproductive and frozen assets	0.04309	
The effect of macroeconomic variables	0.04156	
Non-Integrated Asset-Debt Management	0.03936	
Insufficient attention to big data analysis	0.03786	
High cost of deposit interest	0.03559	
Challenges of human resource management	0.03384	
strategy implementation	0.03382	
Focus on gaining market share (resources)	0.03356	
Non-scientific needs assessment	0.03130	
Lack of understanding about Competition-Cooperation	0.02979	
Weak infrastructure	0.02754	
Provide all services to all customers	0.02741	
Not using new digital technologies	0.02467	
variable needs of z generation customers	0.02460	
Non-personal communication with the customer	0.02453	
Lack of development of unrelated revenues	0.02427	
Weak implementation of corporate governance	0.02326	
Lack of integration of customer service channels	0.02157	
High administrative-personnel costs	0.01965	
Deposit and fixed asset resources	0.01896	

Subsections	Weight	Prioritization
High infrastructure costs	0.01868	
Lack of full use of customers' business capacities	0.01782	
Cultural and regulatory problems in banks' communication	0.01638	
Lack of tangible separation of service distribution channels	0.01549	
Threats to non-bank competitors (Fintechs)	0.01397	
Insufficient attention to brand identity	0.01381	
Unstable income currents	0.01219	
Similar and non-competitive products and services	0.01206	
Disproportionate and unstable key partners	0.01052	
Axis branch in large banks	0.01049	
Regulatory constraints on the selection of partners	0.01032	

Figure 4. Showing the weight and prioritization of all subsections
Source: Research Findings

Answer the second question:

The second question was: What are the weights of importance and prioritization of Iranian commercial banks' business model's main categories?

The pathology of commercial banks' business model is classified into seven categories ranked in Table 7.

Table 7

Summary of computational results of the general model

Criterion	Weights of importance	Weights of importance (Normalized)	Priority
Customer	1	0.195	1
Suggested Values	0.968	0.188	2
Key Activities	0.820	0.159	3
Key resources	0.762	0.148	4
Financial Structure	0.630	0.122	5
Key Partners	0.527	0.102	6
Value Presentation Channels	0.434	0.084	7

Source: Research Findings

Answer the third question:

The third question was the prioritization and importance of each of the concepts related to the main categories of the business model of Iranian commercial banks.

Customers

The pathology of the customer sector are classified into four categories, which are summarized in Table 8.

Table 8
Summary of Computational Results of Customer Section

Criterion	Weights of importance	Weights of importance (Normalized)	Priority
Improper segmentation of target customers according to the capabilities of the bank	0.404	1	1
Non-scientific, non-integrated and mostly one-sided needs assessment (from inside to outside)	0.224	0.554	2
Provide all services to all customers regardless of profitability	0.196	0.485	3
Extensive and variable needs and low loyalty of z generation customers	0.176	0.435	4

Source: Research Findings

Suggested Values:

The pathology of the value proposition section is classified into four categories, which are mentioned in Table 9.

Table 9
Summary of computational results of the proposed values section

Criterion	Weights of importance	Weights of importance (Normalized)	Priority
Inadequate value proposition to customer needs (lack of customization)	0.340	1	1
Inability to fully and instantly cover customer needs. (lack of value)	0.313	0.922	2
Insufficient attention to improve the customer experience	0.272	0.802	3
Similar and non-competitive products and services	0.075	0.220	4

Source: Research Findings

Key Activities

The pathology of customers section in eight categories is classified in order of importance weights.

Table 10

Summary of Computational Results of Key Activities Section

Criterion	Weights of importance	Weights of importance (Normalized)	Priority
Integral relationships between business model elements	0.168	1	1
The effect of macroeconomic variables and external factors on the business of banks	0.150	0.896	2
Non Integrated Asset- Debt Management	0.142	0.849	3
Challenges of human resource management	0.122	0.730	4
The gap between the development and implementation of customer-centric strategies in different parts of the bank (strategy implementation)	0.122	0.730	4
Focus on gaining market share (resources) regardless of efficiency and profitability	0.121	0.724	5
Not using new digital technologies based on artificial intelligence	0.089	0.532	6
Weak implementation of corporate governance	0.084	0.502	7

Source: Research Findings

Key Resources

The pathology of key resources is classified into five categories.

Table 11
Summary of Computational Results of Key Resources

Criterion	Weights of importance	Weights of importance (Normalized)	Priority
Unproductive and frozen assets	0.305	1	1
Insufficient attention to big data analysis as a key source	0.268	0.878	2
Weak infrastructure and unfavorable architecture in the field of information technology	0.195	0.639	3
Deposit and fixed asset resources as the most important resources instead of knowledge and partnership resources	0.134	0.440	4
Insufficient attention to brand identity	0.098	0.320	5

Source: Research Findings

Financial Structure

The pathology in the financial structure sector is classified into six categories, in order of importance weights.

Table 12
Summary of Computational Results of Financial Structure Section

Criterion	Weights of importance	Weights of importance (Normalized)	Priority
High cost of deposit interest	0.286	1	1
Lack of development of unrelated revenues and disproportion of service fee rates to the cost of services	0.195	0.682	2
High administrative-personnel costs	0.158	0.552	3
High infrastructure costs	0.150	0.525	4
Threats to non-bank competitors (Financial Technologies) in attracting traditional banks' revenues	0.112	0.393	5
Unstable income currents	0.098	0.343	6

Source: Research Findings

Key Partners

The pathology of key partners is classified into three categories.

Table 13

Summary of Computational Results of Key Partners

Criterion	Weights of importance	Weights of importance (Normalized)	Priority
Lack of proper understanding of banks about the need to cooperate with other actors in the ecosystem. (Competition-Cooperation)	0.588	1	1
Disproportionate and unstable key partners	0.208	0.353	2
Regulatory constraints on the selection of strategic partners	0.204	0.346	3

Source: Research Findings

Value presentation channels:

The pathology of value delivery channels is classified into six categories in order of importance weights.

Table 14

Summary of Computational Results of Value Presentation Channels

Criterion	Weights of importance	Weights of importance (Normalized)	Priority
Non-personal, non-specialist, and shallow communication with the customer	0.231	1	1
Lack of integration of customer service channels (Omnichannel)	0.203	0.879	2
Lack of full use of customers' business capacities (customer club)	0.168	0.726	3
Cultural and regulatory problems in banks' communication with customers due to unconventional communication flows	0.154	0.667	4
Lack of serious and tangible separation of service distribution channels tailored to customer segments.	0.146	0.631	5
Axis branch in large banks and lack of specialized services in branches	0.099	0.428	6

Source: Research Findings

5 Conclusions and Policy Implications

The research community is the experts of commercial banks, and its examples are Mellat, Tejarat, Melli, Sepah, Saderat, Shahr, Eghtesad-e-Novin, and Ayandeh banks. The sampling method is a purposeful judgment with the snowball method and data collection tools in the qualitative part of the

interview and review of documents in the quantitative part of the questionnaire. The research findings led to identifying the pathologies of the business model of Iranian commercial banks in the form of 7 categories and 36 concepts prioritized and contributed based on the importance and role of each of them in the business model.

"Improper segmentation of target customers according to the capabilities of the bank," "mismatch of proposed values with customer needs," and "inability to fully and instantly cover customer needs" are the three pathologies that have been the most important among all the pathologies extracted in interviews.

Therefore, the following are suggested as policy requirements:

- 1) The development of a new business model or redefining the current business model due to the increasing changes in the banking environment, especially changes in information technology, the future of the banking industry, and demographic changes, need the bank's existing business model carefully and pathologically examined. Therefore, it is suggested that banks pay close attention to this important issue. Considering the importance of the business model issue, it is recommended that the organization's top managers be actively involved in this work.
- 2) To pathologize the business model, it is very important to describe the current model. Therefore, all parts of the organization should be involved in describing the model. The logic of creating, presenting, and acquiring value must be explained at this stage. It identifies the business model elements (categories and, to a lesser extent, concepts) around which the pathology is based.
- 3) Understanding the reasons for the current situation, the state of competition in the industry, and the industry's future trend in the later stages should be considered to identify the pathologies of the business model through the methods used in this research. Also, since the relationship between the elements of a business model is of great importance, it is suggested that the relationship pathology between the elements be examined in addition to the pathology of the model elements.
- 4) Since "Improper segmentation of target customers according to the capabilities of the bank" has a higher weight in the concepts related to all categories, and also the category of customer segmentation is in the first place of losses, it is recommended that each bank selects the group or groups of its goal customers according to capabilities and capacity. If the segmentation of goal customers as the heart of the business model is done

correctly, we can hope that the other elements (categories) of the model are selected correctly.

If choosing the target customers made any mistake, the attention is paid to each bank's capabilities, and this issue will automatically hurt other elements of the model. It will cause the failure of the business model.

- 5) "Inadequacy of the proposed values with the needs of customers (lack of customization)," which is in the second category of importance and the prioritization of the concepts shows that the values offered by banks to their customers are firstly similar in general banks, and there is no special innovation, and competitive advantage between banks in providing value, and secondly these values are mainly for all groups of customers. Banks' goal is the same, and there is no special distinction between customer groups (micro, commercial, corporate, etc.). Therefore, it is suggested that the different needs of different sections of the bank's target customers be identified through scientific methods, and the proposed values are produced and presented following each group's needs and even under each customer's needs.
- 6) As noted, the concept of "inability to fully and instantly cover customer needs (lack of value)" in terms of importance and prioritization ranked third in terms of concepts related to categories. This concept indicates that, firstly, the needs of customers are not fully covered by banks. Secondly, customers' immediate needs in the administrative bureaucracy lead to a lengthy response to these needs. Therefore, it is suggested that banks value including bank and non-bank values based on all customer needs. It is also necessary to identify customers' immediate needs and respond to them in an agile process through customer relationship channels designed differently for each customer group.

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