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Importance-performance analysis (IPA) of banking factors affecting the improvement of business environment and prevention of corporate bankruptcy through the IPA model

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Abstract

The present study aimed at investigating the importance-performance analysis (IPA) affecting the improvement of business and prevention of corporate bankruptcy that utilized banking resources according to the IPA matrix. Initially, the relevant indices were extracted from the existing literature on the subject, and thereafter, utilizing the Delphi fuzzy method, important factors in four main dimensions (assessment of proposals to obtain financing, liabilities of banks as business partners, rates of interest, and banking penalties, and the way of devising partnership contracts) were identified. The statistical population of this research consisted of relevant legal, banking, and commercial experts. Ultimately, 12 individuals with at least 15 years of experience in the above subjects were selected as the samples. Compliant to the importance-performance matrix output (among 36 influential factors), effective strategies to assist bank managers/executives toward optimal allocation of resources and proper and efficient granting of facilities/loans to strengthen businesses were identified. Furthermore, the following were prioritized and focused on for improvement/enhancement: components and details of proposed reforms to prevent potential losses, level of education/expertise of managers offering to finance, the relationship between the education/expertise of the individual proposing the project to the bank, the proportion of the bank's human resources in the context of the project implementation process, the relationship between the bank's interests to the profit from the partnership, acceptance of roles in the project's profit and loss distribution, establishing as a basis for the realized profits in the partnership contract, the bank's carefulness in the implementation of the project by the customer, adherence to the final actualized profit.

Keywords: Importance-Performance Analysis (IPA), banking factors, business environment improvement, bankruptcy, IPA model
2020 MSC: 65Y20

Introduction

During the life of a business or any economic enterprise, growth and success do not always occur expected by management. Periods of decline are an inevitable life cycle part of organizations, and they transpire sooner or later. The downturn is a period wherein the firm loses a significant portion of its resources, including financial resources,

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manpower, and loyal customers. With the persistence of the company's decline, the business encounters a financial crisis and if not overcome, bankruptcy occurs [6], indicating the important roles of resource suppliers.

The origins of banks historically go back to places in ancient times where antiques were used and precious coins were stored. For security reasons, people entrusted and kept their valuable possessions, especially gold and silver, in such places, and also paid for the maintenance of these objects. Over time, the guardians of gold and silver coins realized they could lend them to applicants for interest. Given the nature of money during that era (consisting of metal coins), this action had no tangible impact on the economy since money was transferred from one person to another [15]. In the Iranian economy, where the money market has a major share of economic activity, banks are considered effective intermediaries in the economic cycle, in other words, the banking sector can be viewed as a link between the supply and demand of monetary resources. Therefore, the performance of Iran's economy is a relationship between the supply and demand of monetary resources. Consequently, if grounded on the appropriate mechanism, the optimal performance of banks can have significant positive effects on advancing macroeconomic objectives. Conversely, in the event of inefficient performance of the banking system and failure to provide services in line with economic development and to properly perform the task of financial intermediation, there will be a monetary crisis in the country [33]. Using the creation of various types of deposits (demand deposits, saving deposits, and time deposits), commercial banks gather and collect funds and utilize them to provide a variety of loans/loans (business, consumer, housing, etc.) or purchase government/municipal securities and bonds. This perspective is derived from the way and methodology of deposited sums entering the economy in a broader sense (creation of monitory resources for commercial banks). This approach is known as the accelerative monetary coefficient. The process of creating money begins with a deposit made by a businessperson in the bank [22]. By offering monetary resources as financial instruments, the financial system, at its base level, minimizes the need for stable exchanges, and reduces the costs associated with transactions, and ultimately encourages trade and business prosperity.

According to the Islamic Revolution two major and important actions were undertaken; one was the nationalization of private banks in 1980 and the second was the merger of several banks. Another substantial challenge was the worldview of the revolutionaries who branded the prevailing banking culture as based on usury and hence contrary to Sharia law. This inevitably led to a fundamental change in the approach of Iranian banks. Before the Islamic Revolution, banks in Iran operated similar to most banks around the world (utilizing usury/interest rates). This topic- interest-free banking- requires a comprehensive article of its own, but in this dissertation, to the extent that it is pertinent to the objective of this study, it will be addressed.

In essence, Islamic banking is the implementation of banking operations, including the collection and concentration of societal savings resources to make investments in various fields to make profits for the bank/banking system within the framework of Islamic norms and laws as well as monetary and credit systems. The resources ensuing from this investment should be shared based on the initial understanding between the three elements of savings, the bank, and the investor. In other words, Islamic banking pursues the same common global banking goals, however, the difference is that this type of banking claims and asserts that banking operations are performed consistent with Islamic jurisprudence [34]. The most important difference between the normal and Islamic banking systems is that Islamic banks engage in banking operations without imposing or requiring interest. Instead of slapping a predetermined interest rate on those who apply for banking services (loans, financing, etc.), intending to utilize the resources for business and production/manufacturing, these banks share in the profits and losses of the endeavor. Undoubtedly, the primary reason for proposing and drafting new bank operation legislation after the revolution was to remove usury from the country's banking system. Eliminating existing banking operations and replacing them with new ones and adapting banking operations to Sharia standards were among the chief aims of the law. According to stipulations of Article 3 of the Law on Interest-Free Banking Operations, deposits by investors should be utilized in eleven instruments that are directly and indirectly in line with Islamic laws [11].

There are multiple reasons why borrowers run into difficulty repaying their loans, and where banks face a large number of overdue receivables. Certain experts believe the impact of macroeconomic factors to be the culprit. Some other researchers have attributed it and blamed banking factors. The logical and comprehensive take is to hold both of these two factors responsible. Macroeconomic factors such as economic growth rate, unemployment rate, financial crisis, exchange rate fluctuations, etc. are among macroeconomic variables that are impactful in the expansion and volume of unpaid receivables. Nonetheless, factors related to the internal banking network such as the interest rate, the amount and quality of bonds, the insurance coverage of loans, customer history/credit plus behavior quality, as well as the performance of bank management are also effective.

Theoretical bases

In today's economy, commercial banks, monetary, and credit institutions play valuable roles in the process of economic development of countries. As monetary intermediaries, banks play roles in transferring the surplus funds of the society and transferring these funds to commercial institutions to expand, develop, and increase their production. Furthermore, banks, monetary, and credit institutions have had slight growth in recent years, and they have made many problems for depositors, which is beyond the scope of the present manuscript. Financial and economic crises in developed countries in recent decades have drawn the attention of economists and researchers to deal with such crises and strategies to combat them (Amroabadi and Mahmoudinia, 2020). Studies on the economic growth and development in developing countries indicate that financial markets play a very important role in increasing the total productivity of production factors as well as their economic growth. The main features of the underdevelopment of financial markets in these countries include the lack of deepening in such markets because financial markets are usually non-competitive in these countries. However, the existence of efficient financial market has a tremendous impact on the development of production, industry, and trade. The aforementioned characteristics of the lack of deepening as a major problem for economic sectors have caused the structure of financial markets in such countries to be in a way that the share of capital markets and financial intermediaries is very important in the production and supply of liquidity for fixed investments and working capital. Given the special position of banks, financial, and credit institutions as the largest financial intermediaries in the payment of loans and various facilities for planning and mismanagement of these sources, and interaction with customers, especially manufacturing and trading companies, they play important roles in the improvement and possible failures of businesses. The huge volume of uncollected receivables of these institutions is an important issue for banks, and financial and credit institutions. Increasing the volume of banks' receivables, on the one hand, reduces the service capacity of banks and, on the other hand, causes irreparable problems and failures in the economy of society and related businesses [32]. Most of the financial crises refer to the type of interaction of banks and the way of enforcement of applicable laws and regulations. There are several factors influencing the volume of accrued receivables of banks, some of which are outside financial institutions or in fact about macroeconomic variables such as economic growth and unemployment rates, and exchange rate problems. Other factors can be searched within the financial behaviors of banks themselves, such as interest rates, the amount and way of collateral received from customers and insurance coverage, and finally, factors related to customer accreditation, management, performance, and studies of projects provided by the customers [1]. Because the allocation of financial resources to companies is a major activity of banking and credit institutions, and the non-timely repayment of loans to customers is also a risk that threatens the bank's actions. Financial and credit institutions thus try to prevent this risk in various ways. Therefore, banks are also interested in the success of the proposed projects to succeed and prevent the occurrence of the aforementioned problems [3].

Due to banking issues and problems, comprehensive banking has been considered in four fields, commercial banking, personal banking, corporate banking, and private banking, in recent years [24]. Corporate banking is the ability of banks to provide credit services proportional to the complex issues of the company, exchange rate management, preparation of various and specific financing packages, facilitating international trade for office businesses in global markets, granting credit lines to companies, working capital facilities, assisting corporate financial management, providing a variety of consulting services, liquidity management, e-banking services [5]. Lady ZYnski et al. referred to the role of marketing in the implementation of retail banking as an important part of comprehensive banking [9]. Customer attention is considered to be the most important factor in implementing comprehensive banking, especially micro-banking.

Even though the law on interest-free banking operations in Iran seemed to be very useful and relatively comprehensive during its development, it has been criticized and received many suggestions since the beginning of its implementation. A dynamic law incorporates appropriate solutions for research and development, and the law on interest-free banking operations also has a problem in this regard [23]. The problems for the lack of proper and honest implementation of banks and credit institutions are more than the shortcomings of the law itself.

Research background

Hosseini and Aghaei Meybodi [12] conducted a study titled "Predicting and identifying companies with a high probability of bankruptcy in the Tehran Stock Exchange (different analysis of models)". Raei et al. [27] also conducted a study titled "The effects of market power and income structure on profitability and bankruptcy risk in the Iranian banking system". In another study, Namazi et al. [25] conducted a study titled "Modeling and Prioritizing Effective Real Profit Management Criteria over Bankruptcy Prediction in Companies Listed on the Tehran Stock Exchange", to model and prioritize effective real profit management criteria over bankruptcy. Rostami [30] conducted a study titled

"The Effect of Corporate Governance and Profit Management on Bankruptcy of Companies Listed on the Tehran Stock Exchange". Zamani and Darabi [38] also conducted a study titled "Determinants of Financial Turmoil of Companies with an Emphasis on the Roles of Banking Variables". In a study titled "A study on the effect of productivity and cost leadership strategy and differentiation on bankruptcy risk", Azimi Yancheshmeh et al. [4] examined the impact of productivity and cost and differentiation strategy on bankruptcy risk. Maudos [20] evaluated the role of crises and the effect of income structure on profitability risk in different types of European banks. Tian et al. [36] conducted a study titled "Predicting non-life insurer's insolvency using non-kernel fuzzy quadratic surface support vector machines" and concluded that FQSSVM was more accurate in predicting rates and had minimal type I and II errors at a reasonable computational time. Cihak & Hesse [7] used the score-z index to examine and compare the health of Islamic banks in comparison with conventional banks. Jardin and Séverin (Jardin, Philippe & Eric Séverin, 2011) used the internal model of the organization to predict the bankruptcy of companies. Lehmann & Neuberger [17] studied small and medium-sized enterprises in the German economy. Tanko [35] studied the impact of banks' intermediation roles in providing banking services to customers, including the provision of credit facilities by Indonesian commercial banks. Oliver & Hoffman (2014) studied various reasons for business failure in the risk of failure. Yoon & Young [37] also studied bankruptcy and financial failures in small companies and used sales credit card data. Michaelides [21] conducted a study titled "Greece's Business Cycles and Recession (1960-2011)" and provided the Long-Term Analysis of the Balance in the Eurozone, and International influences, in particular by the United States and the European Union, on the business cycle in Greece. Inam et al. [14] conducted a study titled "Forecasting Bankruptcy for organizational sustainability in Pakistan" and concluded that the neural network model was more appropriate for predicting corporate bankruptcy. Garcia et al. [10] found that there was a positive and significant relationship between the quality of corporate obligations and bank debt.

Hubbard, et al. [13] indicated that the health status of banks and especially the bank capital ratio affected the financial cost of loans for borrower enterprises. Loayza and Rancie (V. Loayza, Rancie Re., 2015) examined the effects of monetary and fiscal policies on economic growth. Rosenfeld [29] found that receiving support loans six months before the financial turmoil of companies would significantly increase the likelihood of exiting the turmoil. Mackevicius [19] presented a sophisticated analysis method for corporate bankruptcy in a study. Robert & Yuan [28] discussed the roles of institutional shareholders in the financial costs of enterprises.

Research methodology

The present research was applied in terms of purpose and had a qualitative-descriptive survey type in terms of implementation. After detecting and creating a group of experts, they were justified and informed about the research purpose. The statistical population consisted of individuals who had at least a master's and doctoral degree in banking, business, and banking law fields and also had long and valuable experiences in the profession; hence, the selected individuals were educated and also had long-term professional experience.

The number of samples was equal to 12 according to the judgmental method, and all of them were eligible. The effective factors in improving business and preventing financial problems and bankruptcy of companies were identified through a desk study, and then three professors and experts were consulted in four dimensions of evaluating proposals for facilitating the loans, the bank's responsibility as a commercial partner, interest rates, banking offenses, and the way of creating the partnership agreements, and then the most important items (with an average of 7 out of 10) were selected using the fuzzy Delphi method, and the remaining 137 items in the next step were analyzed using two questionnaires for experts' opinions according to the IPA method.

The importance-performance analysis (IPA) model is conceptually a multi-criteria model. To use this model, the indices must be specified for the analysis. In this model, each component is measured in terms of two dimensions, "importance (optimal status)" and "performance (current status)". The "importance" criterion is used to determine where resource allocation is more critical [2].

After identifying and creating a group of experts in the present study, the experts were justified and informed about the research purpose.

Importance measurement

Suppose n raters presented with s attributes rank their top k preferences using natural numbers from I (most preferred) to k (least preferred), with no ties allowed. The problem is to use these rankings to assign each attribute i an importance value p_i lying in some specified interval that, for convenience, is here $[0, 1]$; the value of p_i should increase with the importance of attribute i.

Denoting by g_{ij} the rank assigned to the i-th attribute by the j-th rater, the first thing to do is to recode the g_{ij} as ranking scores h_{ij} that lie in the desiered interval, increases with degree of preference, rather than decrease, and assign the value 0 to all attributes not mentioned by rater j:

$$h_{ij} = \begin{cases} (k - g_{ij} + 1)/k & g_{ij}\text{not void} \\ 0 & \text{otherwise} \end{cases}$$

lists h_{ij} for values of k and g_{ij} up to 9. For the reasons noted at the end of the introduction, the mean of the h_{ij} over retters, m_i, tends to crowd attributes together at the bottom of the importance scale. this tendency is even greater the smaller the proportion of attributes ranked by each rater, k/s. Thus, this value is not attractive as a measure of importance. However, this difficulty can be overcome by subjecting the m_i to monotonic transformation that increases small m_i while leaving large m_i relatively unaltered. in view of the relationship between the likelihood of crowding and k/s, a particularly suitable transformation of this kind is $m_i \to (m_i)^{k/s}$. This procedure increases discrimination between attributes and augments the diagnostic and strategic properties of IPA. The transformed importance measure proposed in this paper is therefore

$$P_i = \left(n^{-1} \sum_j h_{ij}\right)^{k/s}$$

Results

IPA matrix consists of two axes of importance and performance that are obtained by averaging each operational goal. As explained in detail in Chapter 3, the IPA matrix consists of four dimensions as shown in the figure 1.

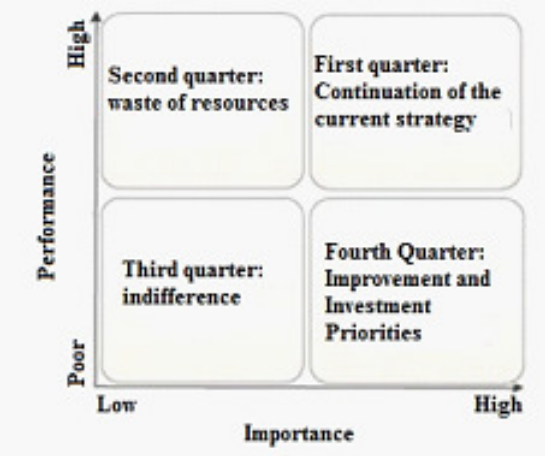

Figure 1:

Table 1: Four dimensions and selected criteria

Dimensions	**Abbreviations**	**Criterion**	**Abbreviations**
The proposal evaluation indices	D1	The familiarity of providers with principles of financial management	Q1
		The familiarity of providers with marketing management	Q2
		The providers' experience in the proposal	Q3
		The relationship of the proposer's education with the proposal	Q4
		Proposal profit to sale ratio	Q5
		The interest coverage of the proposal	Q6
		Good record of the provider in previous projects	Q7
		Management stability of Provision company	Q8
		Provision managers' education levels	Q9
		Investigating the stability of other sources of the proposal	Q10
Indices of responsibility in the partnership	D2	Bank supervision over the proposal implementation process	Q11
		Offering suggestions for improving the proposal implementation process	Q12
		Proposed correction to prevent possible losses	Q13
		Proportion of bank manpower in the concept of partnership measures	Q14
		Expert accuracy in determining the partnership profit	Q15
		Tying the bank's interests to the profits of the partnership	Q16
		Adherence to profit obtained	Q17
		Bank's carefulness to the outcome of participation as a partner	Q18
		Accepting the role in the distribution of profits and losses of the project	Q19
Banking Profit and Offense Indices	D3	Agreement with the customer in determining the expected profit	Q20
		Review figures as needed	Q21
		Basing the profit realized on partnership contracts	Q22
		Step-by-step offense figures in previous years	Q23
		Paying attention to the status of the partnership project in the commission of offenses	Q24
Indices for providing contracts	D4	Attracting the attention of partner in writing the contract	Q25
		The partner's role in writing the partnership contracts	Q26
		Paying attention to the partner's rights in the typical contract	Q27
		The relationship of customer and bank interests with the outcome of the project in articles of the contract	Q28
		Paying attention to customer's interests in developing the contract	Q29
		The rate of attention to partner's rights in developing the contract	Q30
		The bank's concern about the fakeness of the partnership contract	Q31
		The bank's carefulness about the fakeness of the partnership contract	Q32
		The bank's carefulness about the implementation of the project by customers	Q33
		The bank's carefulness about realizing the expected profit in the contract	Q34
		The bank inspectors' carefulness about the fakeness of the partnership contract	Q35
		The bank inspectors' carefulness about the implementation of the real contract	Q36

According to the questionnaire data, it is enough to subtract the average perceptions from the average expectations to determine the gap for each component.

Table 2: Results of gaps for each component

Row	Components	Gaps
1	Q1	0.83333333
2	Q2	-2.75
3	Q3	-2.666666667
4	Q4	0.5
5	Q5	-1.916666667
6	Q6	-2
7	Q7	-1.916666667
8	Q8	-2.5
9	Q9	0.166666667
10	Q10	-2.583333333
11	Q11	-3.333333333
12	Q12	-3.083333333
13	Q13	-2.75
14	Q14	0.75
15	Q15	-3.666666667
16	Q16	-4.416666667
17	Q17	-4
18	Q18	0.166666667
19	Q19	-4.166666667
20	Q20	0.333333333
21	Q21	-4
22	Q22	-4.75
23	Q23	-2.5
24	Q24	-3.416666667
25	Q25	-3.75
26	Q26	-3.75
27	Q27	-3.666666667
28	Q28	-4
29	Q29	-3.5
30	Q30	-3.666666667
31	Q31	-2.916666667
32	Q32	-3.666666667
33	Q33	0.5
34	Q34	-3.166666667
35	Q35	-3.166666667
36	Q36	-3.25

Source: Research calculations

As presented in the table above, the largest gap belongs to component 22, then components 21 and 32 respectively. The positive gap between components 16 and 19 indicates that, in terms of experts' opinions, banks could perform well in such components.

According to the review of the questionnaire and their analysis, Table 3 presents the data obtained from the importance-performance questionnaire.

Table 3: Importance-performance analysis

Row	Operational goals	Importance	Performance
1	Q1	6	6.083333333
2	Q2	5.5	2.75
3	Q3	5.833333333	3166666667
4	Q4	5.333333333	5.8333333333
5	Q5	5.5	5.666666667
6	Q6	5.416666667	3.416666667
7	Q7	5.583333333	3.666666667
8	Q8	5.25	2.75
9	Q9	5.416666667	11.41666667
10	Q10	5.583333333	3
11	Q11	5.916666667	2.583333333
12	Q12	5.583333333	2.5
13	Q13	5.333333333	2.583333333
14	Q14	5.166666667	5.916666667
15	Q15	6	2.333333333
16	Q16	5.666666667	1.916666667
17	Q17	6.083333333	5.833333333
18	Q18	5.75	1.75
19	Q19	5.5	1.583333333
20	Q20	5.833333333	5.833333333
21	Q21	6.416666667	1.833333333
22	Q22	5.25	1.666666667
23	Q23	5.25	2.75
24	Q24	5.583333333	1.833333333
25	Q25	5.833333333	1.833333333
26	Q26	6	2.083333333
27	Q27	6.083333333	2.333333333
28	Q28	5.583333333	2.083333333
29	Q29	5.666666667	2.083333333
30	Q30	5.25	2
31	Q31	5.833333333	2.333333333
32	Q32	5.666666667	2.166666667
33	Q33	5.5833333333	6.166666667
34	Q34	5.25	2.416666667
35	Q35	5.5	2.25
36	Q36	5.714286	2.25

Source: Research calculations

After determining the components with negative and positive gaps, we can provide the prioritization and the strategy with the help of the IPA matrix according to the perception questionnaires, which finally show the same performance, as well as entering the importance parameter (which is questioned for each component in the expectations questionnaire).

To draw the IPA matrix, performance is located on the longitudinal axis and the importance is on the transverse axis. Four quadrants of the IPA matrix can be formed by averaging the importance and performance. We obtain the weights of the components based on the following equation:

$$OW_j = \left|(b_j - c_j) \times b_j\right|.$$

We normalize it to facilitate the analysis as follows.

$$SW_j = \frac{OW_j}{\sum_{j=1}^{m} OW_j}, \qquad 0 \leq SW_j \leq 1, \quad \sum_{j=1}^{m} SW_j = 1$$

Table 4: Importance-performance of the components

Row	Q	OW_j	SW_j
1	Q1	0.001727361	0.506944444
2	Q2	0.025768439	7.5625
3	Q3	0.028773574	8.444444444
4	Q4	0.009938241	2.916666667
5	Q5	0.003218097	0.944444444
6	Q6	0.023283879	6.833333333
7	Q7	0.023946428	7.027777778
8	Q8	0.023425854	6,875
9	Q9	0.233406687	68.5
10	Q10	0.026407326	7.75
11	Q11	0.029341473	8.611111111
12	Q12	0.026265351	7.708333333
13	Q13	0.024206715	7.104166667
14	Q14	0.015120324	4.4375
15	Q15	0.029152173	8.555555556
16	Q16	0.028844561	8.465277778
17	Q17	0.003312747	0.972222222
18	Q18	0.025839426	7.583333333
19	Q19	0.022479354	6.597222222
20	Q20	1.944444444	1.944444444
21	Q21	0.024987577	7.333333333
22	Q22	0.026975225	7.916666667
23	Q23	0.023425854	6.875
24	Q24	0.021343556	6.263888889
25	Q25	0.23425854	6.875
26	Q26	0.026620288	7.8125
27	Q27	0.029152173	8.555555556
28	Q28	0.028394974	8.333333333
29	Q29	0.024845602	7.291666667
30	Q30	0.024987577	7.333333333
31	Q31	0.023189229	6.805555556
32	Q32	0.027069875	7.944444444
33	Q33	0.01050614	3.083333333
34	Q34	0.026076051	7.652777778
35	Q35	0.022999929	6.75
36	Q36	0.02491659	7.3125

Source: Research calculations

Table 5 presents the final results of the operational objectives using the IPA matrix.

Table 5: Final results of IPA

First quadrant strategy: Continuation of the current strategy (9 factors)
Q28,Q18,Q15,Q1,Q3,Q8,Q7,Q5,Q2
Second quadrant strategy: Waste of resources(9 factors)
Q36,Q34,Q33,Q30,Q29,Q27,Q26,Q21,Q20
Third quadrant strategy: Indifference (7 factors)
Q8,Q6,Q25,Q24,Q23,Q31,Q32
Fourth quadrant strategy: Improvement and Investment Priorities (11 factors)
Q17,Q33,Q22,Q19,Q16,Q11,Q12,Q14,Q4,Q9,Q13

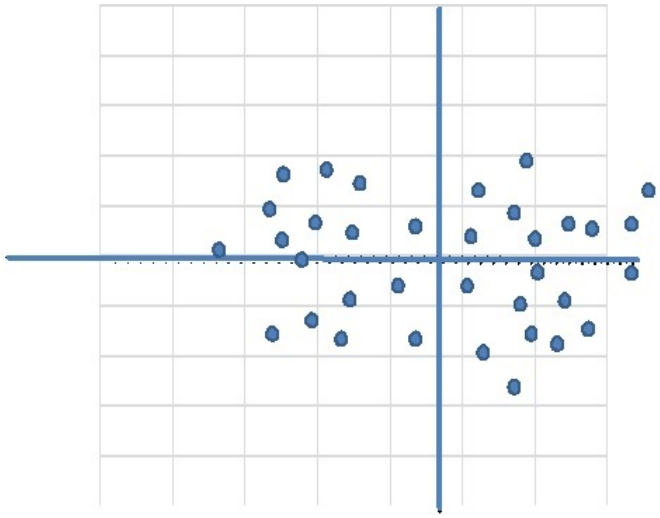

Figure 2: Placement of 36 items in the corresponding quadrants, Source: Research calculations

Discussion and conclusion

Since the IPA matrix simultaneously shows the importance-performance levels in four quadrants, the horizontal axis is related to the importance of factors and the vertical axis is related to the performance of factors. In the present study, the gaps between the components were first examined and the negatives components indicated low performance. Furthermore, the positive component gap indicated that the banking system had a proper performance.

1- Factors allocated to the first quadrant (continuation of current strategy)

According to the IPA matrix, and tables (4-16) and (4-17) of the components, which are located in the first quadrant of the diagram, Q2, Q5, Q8, Q3, Q1, Q15, Q18, and Q28 are the levels of provider familiarity with marketing management, profit to the sale of the project, good experience of the provider in previous projects, review of the stability of other proposed sources, background and experience of the project provider, the project provider's familiarity with principles of financial management, expert accuracy in determining participation profit, bank's carefulness as a result of partnership as a partner, the relationship of customer and bank interests with the result of partnership as a partner, the relationship of customer and bank interests with the outcome of the project in the provisions. They are placed in the first quadrant of the diagram, meaning that according to experts, the nine factors mentioned above are of great importance. According to research experts, the current status of the bank is good in terms of performance in terms of these factors and thus this situation must continue. It seems that factors such as expert accuracy in determining the profit of the partnership and the bank's carefulness as a result of the partnership as a partner have always been criticized by the managers of commercial companies, but the experts gave higher scores to these two components in terms of performance and placed in the first quadrant of the IPA diagram.

2- Factors allocated to the second quadrant (waste of resources)

The components listed in the second quadrant of the diagram included Q20, Q21, Q26, Q27, Q29, Q30, Q33, Q34, and Q36 respectively, which referred to an agreement with the customer in determining the expected profit, price revision if necessary, the partner's role in arranging partnership contracts, paying attention to the partner's rights in typical contracts, paying attention to the customer's interests in developing the contract, paying attention to the partner's rights in developing the contract, bank's carefulness in the implementation of the project by the customer, bank's carefulness in achieving the expected profit in the contract, and bank inspectors' carefulness in the actual performance of the contract. According to the experts, the recent nine factors in banks had high performance, but were less important than other factors in the model; hence, too much focus on this instead of much attention to other factors will cause a waste of resources.

3- Factors allocated to the third quadrant (indifference)

Components in the third quadrant of the diagram included Q32, Q31, Q23, Q24, Q25, Q6, and Q8 respectively, and referred to the bank inspectors' carefulness in the fakeness of the partnership agreement, the bank's concern about the

fakeness of the partnership agreement, gradual step-by-step offense figures of previous years, attention to the status of the partnership plan in performing offense, attracting the partner in writing the contract, the interest of the proposal, and the stability of the management in the provision company. According to experts participating in the research, the seven factors had lower importance and performance than other factors. In other words, they were at a point of indifference.

4- Factors allocated to the fourth quadrant (improvement and investment priorities)

The components in the fourth quadrant of the diagram included Q13, Q9, Q4, Q14, Q12, Q11, Q16, Q19, Q22, Q33, and Q17 respectively, and referred to the proposal for preventing possible losses, the offering managers' levels of education, the relationship between the proposer's education and the project, proportionality of the bank's manpower in the project implementation process, tying the bank's interests to the profit from the partnership, accepting the role in sharing profit and loss, considering the obtained profit in partnership contracts, bank's carefulness in the implementation of the project by the customer, and the adherence to realized profit. According to the experts participating in the research, the above eleven factors, despite their high importance, had low performance. It is necessary for banks to pay more attention to the eleven components mentioned above, for example, factors such as corrective proposals to prevent possible loss (Q13), proposals for improving the project implementation process (Q12), and bank supervision in the project implementation process (Q11) were ranked 1st, 4^{th}, and 2nd respectively in the prioritization of DANP technique but their performance was poor. The above three factors were the pillars of interest-free banking, and thus not paying attention to this group of factors meant not paying attention to the spirit of interest-free banking as the legal structure of banking. Other factors in this quadrant, such as Q16 (tying the bank's interests to the profit from the partnership, and Q19 (accepting the role in sharing the profit and loss of the project), and Q22 (considering the obtained profit in partnership contracts), and Q33 (the bank's carefulness in the implementation of the project by the customer), and Q17 (adherence to the obtained profit), which were ranked 8th, 16th, 7th, 13^{th}, and 17th respectively in the DANP technique analysis and were almost medium to high ranks, had a significant relationship with the concept and spirit of interest-free banking. Banks' attention to these components is the only practical way to implement the provisions of laws and regulations about interest-free banking. The banks' lack of attention to these components has increased the problems of commercial companies and bankruptcy. Therefore, these concepts should be taken into consideration, and banks should spend much time solving the challenges of this sector.

References

[1] M. Abolhassani, *Impact study of banking sanctions and fluctuations of crtain economic variables on the volume of overdue foreign currency receivables of The Export Development Bank of Iran*, MSc Thesis, 2010, .

[2] R.J. Angell, T.W. Hefferman and P. Megicks, *Service quality in postgraduate education*, Qual. Assur. Educ. **16** (2008), no. 3, 236–254.

[3] Z. Araasti, *Presenting a model of influential factors in the status of investment projects of entrepreneurs applying for bank financing*, Econ. Res. **7** (2010), no. Special Issue on Capital Markets, 73–92.

[4] M. Azimi, M. Rajabi and Z. Mahmoud Dehnavi, *A study on the effect of productivity and cost leadership strategy and differentiation on bankruptcy risk*, J. Manag. Account. Res. **8** (2015), no. 27, 71–86.

[5] S. Banerji and P. Basu, *Borrower's moral hazard, risk premium, and welfare: A comparison of universal and stand-alone banking systems*, J. Econ. Asymmet. **12** (2015), no. 1, 6–72.

[6] M. Beheshti-Seresht, M.A. Dehghan-Dehnavi, A. N. Mashayekhi and M. Amiri, *Analysis of cost and asset reduction strategies in financial recovery of firms utilizing economic rent theory and dynamic modeling of systems*, Quart. J. Financ. Engin. Secur. Manag. **47** (2021), 137–160.

[7] M. Cihak and H. Hesse, *Islamic Banks and Financial Stability: An Empirical Analysis*, IMF Working Paper **8** (2008), no. 16, 1–31

[8] P. Du Jardin and E. Séverin, *Predicting corporate bankruptcy using a self-organizing map: An empirical study to improve the forecasting horizon of a financial failure model*, Decision Support Syst. **51** (2011), no. 3, 701–711.

[9] P. Fernandes and T. Pinto, *Relationship quality determinants and outcomes in banking services:The role of customer experience*, J. Retail. Consumer Serv. **50** (2019), 30–41.

[10] N. Garcia, A. Grifoni, J.C. Lopez and D. Mejia, *Financial education in Latin America and the Caribbean: Rationale, overview and way forward*, OECD Working Papers on Finance, Insurance and Private Pensions **33**, OECD Publishing, 2013.

[11] S.A.A. Hedayati, *Study of the law of interest-free banking operations from the perspective of structural analysis and legal criticism*, J. Admin. Sci. Econ. College **12** (1998), no. 1, 109–119.

[12] S.F. Hosseini and O. Aghaie-Meybodi, *Predicting and identifying companies with high probability of bankruptcy in the Tehran Stock Exchange (different analysis of models)*, J. Decision Mak. Oper. Res.**4** (2019), no. 1, 3–14.

[13] R.G. Hubbard, K.N. Kuttner and D.N. Palia, *Are there bank effects on borrowers' costs of funds? Evidence from a matched sample of borrowers and banks*, J. Bus. **75** (2002), no. 4, 559–558.

[14] F. Inam, A. Inam, M.A. Mian, A.A. Sheikh and H.M. Awan, *Forecasting Bankruptcy for organizational sustainability in Pakistan: Using artificial neural networks, logit regression, and discriminant analysis*, J. Econ. Admin. Sci. 35 (2018), no. 3, 183–201.

[15] A. Jackson and B. Dyson, *Modernizing Money: Why our monetary system is broken and how it can be fixed*, Positive Money, 2012.

[16] P. Ładyżyński and K. Żbikowski and P. Gawrysiak, *Direct marketing campaigns in retail banking with the use of deep learning and random forests*, Expert Syst. Appl. **134** (2019), 28–35.

[17] E. Lehmann and D. Neuberger, *Do lending relationships matter? Evidence from bank survey data in Germany*, J. Econ. Behav. Organ. **45** (2001), no. 4, 339–359.

[18] O. Lukason and R.C. Hoffman, *Firm bankruptcy probability and causes: An integrated study*, Int. J. Bus. Manag. **9** (2014), no. 11, 80–91.

[19] J. Mackevicius, R. Sneidere and D. Tamuleviciene, *Complex analysis of company bankruptcy forecasting: Theoretical insight*, Proc. Int. Sci. Conf. V1, (2018), pp. 316–329.

[20] J. Maudos, *Income structure, profitability and risk in the European banking sector: The impact of the crisis*, Res. Int. Bus. Finance **39** (2017), 85–101.

[21] A. Michaelides and Y. Zhang, *Stock market mean reversion and portfolio choice over the life cycle*, J. Financ. Quant. Anal. **52** (2017), no. 3, 1183-1209.

[22] F. Mishkin, *The economics of money, banking and financial markets*, 7th ed., US: The Addison-Wesley Series in Economics, 2004.

[23] S.A. Mousavian, *Critique and review of the law of interest-free banking operations and the proposal of an alternative law*, Quart. J. Islamic Econ. **7** (2007), no. 26, 9–36.

[24] M. Najaf, J. Babakhani, Gh. Bolo and V. Ghorbanizadeh, *Identification and analysis of effective factors in the implementation of comprehensive banking in the banking system based on fuzzy cognitive map*, Monetary Bank. Res. Quart. **42** (2019), 653–694.

[25] M. Namazi, Z. Hajihaa and H. Chenari, *Modeling and prioritizing the effective criteria of real profit management on bankruptcy forecast*, Financ. Manag. Strategy **23** (2018), 1–27.

[26] N.V. Loayza, R. Ranciere, L. Servén and J. Ventura, *Macroeconomic volatility and welfare in developing countries: An introduction*, World Bank Econ. Rev. **21** (2007), no. 3, 343–357.

[27] R. Raaee, H. Ansari and M. Poortaalebi, *Assessing the impact of market power and earnings structure on profitability and bankruptcy risk in the Iranian Banking System*, Financ. Manag. Strategy **6** (2018), no. 21, 51–72.

[28] G. Roberts and L.E. Yuan, *Does institutional ownership affect the cost of bank borrowing?*, J. Econ. Bus. **62** (2010), no. 6, 604–62.

[29] C.M. Rosenfeld, *The effect of banking relationships on the future of financially distressed firms*, J. Corporate Finance **25** (2014), 403–418.

[30] S. Rostami, *The effect of corporate governance and profit management on bankruptcy of companies listed on the Tehran Stock Exchange*, Quart. J. Manag. Account. Stud. **40** (2018), no. 3, 133–141.

[31] B. Sadeghi Amr-Abadi and D. Mohammadi-Nia, *Simultaneous occurrence of banking, debt and currency crises in the Iranian economy and its determining factors during 2016-2017*, Quart. J. Econ. Model. Res. **39** (2021), 187–241.

[32] Kh. Seyed-Shokri and S. Garoosi, *Study of factors affecting increase of non-current receivables in the country's banking system*, J. Econ. Sci.**9** (2015), no. 31, 95–117.

[33] M. Shakiba, A. Daghighiasli, M Damankeshideh, M. Afsharirad and A. Esmaeelzadeh Moghari, *Effects of macroeconomic variables and market power on banking sector's deposits (weighted least square in dynamic panel data approach)*, Quart. J. Financ. Engin. Secur. Manag. **41** (2019), 212–242.

[34] M. Taalebi and H. Kiai, *Finding roots of challenges of using partnership contracts in the banking system of the Islamic Republic of Iran*, Islamic Financ. Res. **1** (2012), no. 2, 37–55.

[35] I. L.F. Tanko, *Analysis of the effect of capital adequacy ratio and non-performing loans to deposit ratio in the state-owned bank in Indonesia*, Thesis Management, Department of Economic and Business Facially, Hasanudin University Makasav, 2012.

[36] Y. Tian, W. Yang, G. Lai and M. Zhao, *Predicting non-life insurer's insolvency using non-kernel fuzzy quadratic surface support vector machines*, J. Ind. Manag. Optim. **15** (2019), no. 2, 985–999.

[37] J.S. Yoon and Y.S. Kwon, *A practical approach to bankruptcy prediction for small businesses: Substituting the unavailable financial data for credit card sales information*, Expert Syst. Appl. **37** (2010), 324–362.

[38] M. Zamani and R. Daaraabi, *Determinants of financial turmoil of companies with an emphasis on the roles of banking variables (Empirical evidence: Tehran Stock Exchange Companies)*, Monetary-Bank. Res. Quart. **11** (2018), no. 26, 271–292.