



## Prioritization of financial resilience components of mergers and acquisitions using fuzzy Delphi Analytical Hierarchy Process or FDAHP

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### ABSTRACT

The purpose of resilience is to create the capacity to improve a system for survival, from a shock and facing change and instability, to resist the effects of shock by creating the capacity to adapt and grow. Financial resilience due to mergers and acquisitions is defined as the ability to access and use internal capabilities and appropriate, acceptable and available external resources and support in times of financial adversity by combining and mergers and acquisitions several companies and businesses. In this research, a comprehensive model of financial resilience of mergers and acquisitions with the approach of financial engineering and risk is presented. The sampling method in this research is grounded theory (qualitative-quantitative). The statistical population of this research includes experts familiar with financial resilience, integration and acquisition, and financial engineering in Tehran, of which 10 experts were identified and considered as the statistical sample of the research. The tool of data collection was the use of experts' questionnaire and the analytical Hierarchy process using fuzzy pairwise comparison and the FDAHP method, and finally, based on the components obtained from the six-point approach of Strauss and Corbin, the relevant components were prioritized and their effects in the financial resilience of businesses with the approach of merger and acquisition, it was formulated and suggestions were presented in this direction.

**Keywords:** Financial resilience, merger and acquisition, data foundation approach, financial engineering, risk management.

## 1. Introduction

Following the developments that have emerged with the expansion of the use of the Internet, traditional banks and financial institutions found that they have no choice but to accept the transition process, on the other hand, the financial crisis of 2008 revealed the inefficiency of the traditional banking and investment system. Today, the importance of mergers and acquisitions as one of the most important means of realizing strategic motives in various industries, especially the financial services industry, is not hidden from anyone. The financial services industry includes a wide range of financial institutions such as banks, financial and credit institutions, insurance companies, stock exchanges and investment companies, which, depending on the specific conditions and purpose, use from the merger and acquisition strategy. Successful mergers and acquisitions will bring many benefits, including increased shareholder wealth, reduced financing costs, access to resources, and synergies. But many cases can be found that this strategy has failed (Rahnoord, 2016), and has led to the destruction of value, weakening of the organization, and financial instability (Bruner, 2004). Various reasons can be listed for why mergers and acquisitions fail (Firontino and Garzella, 2001; Bekir et al., 2001), the most important of which are weakness in planning and targeting; problems in combining and transferring resources and corporate governance; and weakness in integration and management after integration, etc. Nelson (2018), and McGrath (2011), criticize the gap in M&A research and state that despite the large number of articles and books written on various aspects of M&A, including identity-building in mergers and acquisitions, the process of mergers and acquisitions still do not provide a comprehensive framework for managing mergers and acquisitions that can integrate the broad and scattered concepts of mergers and acquisitions in the form of an integrated and practical framework in allow the managers (Aghazadeh et al., 2018).

Financial resilience is raised when a company or institution faces a financial crisis or shock; When a company is examined from the point of view of financial resilience, it is analyzed how likely it is for a company to deal with a crisis according to its performance, and after dealing with a crisis, how much time is needed to return to the pre-crisis performance

and What is the amount of decline or decrease in the company's performance in dealing with the crisis? Financial resilience is defined as the ability to access and use internal capabilities and appropriate, acceptable and available external resources and support in times of financial adversity. Therefore, to increase financial resilience, it is necessary to pay attention to its multidimensionality, as well as to be able to understand and deal with its unknown and unknown areas (Tadel and Manina, 2009). Resilience in the monetary and financial sector means the ability of the monetary and financial sector to resist external shocks and internal damage, and on the other hand, it can create conditions that cause the monetary and financial sector to face and be exposed to impulses. have been damaged and have lost their strength and resistance, and vulnerable areas have arisen for the organization/company.

Therefore, the issue of not paying attention to the development plans and the vision document of the Islamic Republic of Iran is also one of the factors that can increase the importance of financial resilience and monetary economy. finance according to the complexity and challenge of businesses, increasing the need for quantitative methods and modern engineering in the financial field, the need for investors to use their capital optimally and maximize their wealth, the need to use consistent, dynamic and practical tools and at the same time It has raised the importance of reliability for financial decision making. The foundation of financial engineering knowledge is financial economics or the application of economic principles in the dynamics of the securities market, especially the design, pricing and risk management of financial contracts (Rahnamay Roodposhti, 2019).

In the meantime, the development of evaluation approaches in the design of the merger and acquisition model has led to the formation of different returns in the field of value generation. Understanding the value-based approach is the necessity of integration and acquisition in today's businesses, which includes the following: First, the life and survival of the company in competitive conditions, it is necessary to pay attention to value creation thinking. Secondly, value creation in business combination and merger and acquisition reveals the way of thinking that finds meaning in the value chain (Rahnamay Roodposhti & et al., 2012). This means that these companies must be resilient in order to maintain the new trend and remain

competitive in their market; The concepts of resilience and competition are very close (Branco et al., 2019).

In general, to increase financial resilience in critical situations and reduce organizational and corporate risks, a new approach can be used to consolidate companies and grow the financial, managerial and operational synergy of a commercial enterprise, create a monopoly in a business, reduce costs or take the risks of a business enterprise, and that is to pay attention to mergers and acquisitions with different motivations. In the meantime, considering financial engineering tools and their applications in reducing financial risk and improving the resilience process, this research seeks to provide a comprehensive model for financial resilience derived from mergers and acquisitions.

For this purpose, the main goal of this research is to investigate the issue of merger and acquisition with a holistic approach and a process that, while identifying and discovering the processes of merger and acquisition, and the effective factors in each sector (separately), and its adaptation to the experiences Iran's financial services industry should explain positive and negative hidden angles in merger and acquisition management, and as a localized decision-making tool with the requirements of Iran's financial services industry, it should be effective for executives and researchers.

Therefore, according to what was mentioned, financial resilience is not only the ability to quickly return to the initial conditions and recover from disruptions in the financial market, but also a strategic approach to welcome changes that include possibilities with positive and negative aspects.

Based on this, the main question in this research is: The financial resilience model of merger and acquisition: What are the dimensions and components of the financial engineering and risk approach?

## **Research literature**

Currently, the majority of societies, organizations and individuals are in diverse and changing environmental conditions. Despite the fact that these environments can provide significant opportunities for the success and growth of organizations, they can also create important threats and challenges. All kinds of events such as natural hazards, political unrest, economic instability and human errors can severely threaten the organizational performance. As a result, to overcome

these complex and destructive events, it has highlighted the need to develop financial resilience in organizational systems and infrastructure in the direction of financial engineering and risk. The question that comes to mind is why some of the organizations have remained strong despite these incidents and continue their growing path and some others were not able to face the environmental risks in the same conditions. And they are doomed to failure? What is the secret of success and distinction of such organizations? The need to achieve sustainable survival and success has caused many organizations to reconsider their business priorities and focus on adapting to business changes and responding appropriately to environmental requirements. In order to reach this important new concept called organizational resilience has entered the science of management. Resilience refers to the capacity of a company to survive, adapt and grow against changes.

## **Financial resilience**

Financial inclusion has become a policy priority. For many countries, this means focusing on the delivery and practical aspects of financial products and services. This approach is not enough to improve financial well-being in general. This approach suggests a more comprehensive approach that moves from asking whether people are excluded in society to asking whether they have access to accessible, acceptable and appropriate resources and supports in financially disadvantaged situations, or whether they have distanced themselves from these concepts. Financial resilience can help determine the resources that can and should be invested to help people cope with financial adversity, help develop effective policies, and ultimately improve financial well-being. While financial resilience is a relatively new concept (Salignak et al. 2016; Muir et al., 2016; Finney, 2016).

## **Dimensions of financial resilience**

Thus, the project of theorizing "financial resilience" is not limited to describing the behavior of the financial characteristics of individual actors such as household debt, corporate solvency, or government liquidity. The conditions of a specific time trend of an accounting ratio or an economic measure. Nor should the conceptualization of financial resilience be reduced to mere explanatory exercises that document the

changing dimensions of financial, fiscal or monetary relations across different spatial aggregates (cities, regions or nations). Instead, the position presented here conceives the creation of "financial resilience" as an analytical concept that shows the systemic behavior of capitalist development in terms of the historical and institutional evolution of the urbanization process and the monetary-financial system as a whole. Gives. In relation to financial resilience with governance practices and capitalist regulations, it will be useful to discuss the spatial aspects of financial resilience from the perspective of the institutional perspective of resilience (i.e. the resilience of entities at both micro and macro levels, from families, financial intermediaries and governments to monetary arrangements and financial markets) and perhaps more importantly, from a functional point of view, it is resilience (i.e. resilience of financing flows and asset flows).

Resilience in crises has been one of the most important theoretical and practical concepts in crisis management in recent years. In this regard, relatively much attention has recently been paid to resilient organizations against crisis as one of the important and key components in society's resilience. Resilient organizations are organizations that are able to overcome crises with low costs due to their effective planning, preparation and high flexibility. Improving resilience leads to the growth of people and the acquisition of better thinking and self-management skills and more knowledge. Accepting corporate resilience does not mean creating a new unit or considering resilience as another function in business.

Resilience thinking should be integrated into all business processes. Each of the four characteristics (efficiency, coherence, adaptability and diversity) can be exploited to improve the resilience of specific business processes.

Financial resilience is raised when a company or institution faces a financial crisis or shock; When a company is examined from the point of view of financial resilience, it is analyzed how likely it is for a company to deal with a crisis according to its performance, and after dealing with a crisis, how much time is needed to return to the pre-crisis performance and What is the amount of decline or decrease in the performance of the company in dealing with the crisis (Qara Daghi et al., 2019).

Acquisition to obtain effective control by a company over an asset or ownership of another company, without any combination. Therefore, during an acquisition, two or more independent companies may still retain their rights separately, but under the control of this company. There will be changes. In this direction, it can be said that it is acquired and can take control of the target company. From a commercial point of view, the term acquisition is different from the term possession and both of them are used separately. For example, in England, ownership of 50% or more of the equity is considered as acquisition while acquiring more than 90% of a company alone it can be called acquisition, because the stockholders may also sell the remaining 10% depending on their desire (Rahnamay Roodposhti et al., 2019).

**Dimensions of financial resilience**

Macro financial resilience	Microfinance resilience	
General sectors in the economy (financial companies, non-financial companies, households, government)	Liquidity and solvency of companies, households or (local) governments, interest rate, financial leverage	Institutional focus
Income distribution (major importance of the financial industry; "Financialization")	Flow of funds (credit, assets)	functional focus (tasks)
Scope of the financial cycle, financial fragility	profit margin fluctuations; Financial Leverage	Resilience: response to a shock
The length of the financial cycle	adjustment of profit margins of companies; Deleverage of individual balance sheets	Recovery: Speed "coming back"
Increase or decrease of financial resources, system of saving financial resources	Company profitability/Finances against the company- Non-financial, post-crisis levers	direction/Recapture: Change composition after shock
Financial stability, "customary recession"	the level of profitability of the company; Financial stability	Renewal: reorienting the path (growth)

Table number 1: Biri, 2016

Today, due to the expansion of information technology, the increase in the penetration of the Internet and the simultaneous evolution of the virtual space, the need for innovation in the financial industry is felt more. Fintech or financial technology application of innovation technology to improve financial performance. Fintech is a combination of two words Technology And Financial It means technology and financial affairs and it is one of the fields - transformative and growing technologies It is the fourth industrial revolution A process that changes the shape, improves quality and creates a financial perspective along with cost reduction and various services has become wet (Gamber et al, 2017)

**Mergers and acquisitions**

Merger is the combination of two legal entities and the formation of a single legal entity that can be manifested and start its activity by combining their names or by forming a new legal name. However, acquisition is used in a synonym sense, such as acquisition, acquisition and purchase, in which the acquired legal personality is lost and is purchased and acquired by the acquiring company, and it no longer has a legal identity and personality. Integration and education are divided into three categories: horizontal, vertical and composite. Horizontal integration includes companies that produce one or more similar or related products in the same market. Vertical integration occurs between companies that have buyer-seller relationships prior to the merger. In other words, a company merges with a previous company in the production process (supplier of raw materials) or later

(distribution or consumer). This type of integration is divided into three categories. Product, market and compound development.

Financial resilience of mergers and acquisitions is defined as the ability to predict, avoid and adjust positively against environmental disturbances and changes. This ability is a combination of the necessary capacities to restore efficiency after a disruption and create the necessary capacities before responding to a crisis. Therefore, flexibility and adaptability for all businesses has become an important necessity in today's rapidly changing environment, and the need to create a strong attitude towards it is strongly felt for all businesses.

Resilience is taken from physics and means jumping backwards. In a research, Holling introduced resilience as the system's stability against sudden changes and their ability to absorb shock, while maintaining past relationships between parameters or between state variables (Holling, 1973). Pim (1991) considers resilience as the speed at which the system returns to equilibrium. Also, Pirings (2006) defines resilience in a relative way: "the gap between current and critical problems". Fixel (2007) defines resilience as the capacity of a system to survive, adapt and grow in the face of change and instability.

**background Research**

The following table shows a summary of the research conducted in the field of financial resilience with the approach of merger and acquisition at the level of internal and external research.

Row	research fellow	Research year	Research results
1	Partavi et al	2022	Agents the future view participation strategic with fintech I see And Existence System Analysis Risk, to order Highest priority particle for direct object at swing Bring Bank have.
2	Gholami et al	2022	Agents Ali effective On Implementation Model policy: Legislation, Infrastructure legal, Facilities Governmental, incentive Hi legal, correction politics macro sovereign is. In addition to At This path factors like Infrastructure Hi Technology, Creation channel Hi communicational Role interferer had And Agents intention Use of technology, Culture participation, Culture entrepreneurship, risk taking learning And Education, trust building Role Background in this regard Play maydo
3	Yadegari et al	2021	The effect of monetary policy on the index of economic resilience, economic vulnerability and net resilience is significant
4	Rawshni et al	2021	Iranian fintech startups through trust building, communication and interactions, design and implementation of appropriate marketing mix can lead to consequences at the level of society (change of lifestyle, improvement of quality of life, technological progress) and positive consequences for businesses (revival of business and Small jobs, creating new businesses, facilitating and accelerating the provision of financial services, reducing the cost of providing

Row	research fellow	Research year	Research results
			and receiving financial services.
5	LanSun et al	2022	The results are that low-income families and families with one parent with dependent children performed well, considering their ability to save regularly, they were still in a weaker position. In general, households with a low-income rate could not obtain sufficient financial information through counseling, or receive a specialized counseling.
6	Robert L. Clark and Olivia S. Mitchell	2022	Policies and programs that increase financial resilience can help low- and moderate-income households withstand economic shocks and better meet unexpected income needs.
7	Crystal C. Hall	2021	One of the constant concerns in the world of public politicians has been the lack of personal savings. The results of this research are to present psychology as a tool to improve the financial security of the most vulnerable people and expand it in a deeper way.
8	Tang, Hianiman and Kuja	2019	The researchers' criterion has the ability to effectively measure the cycles of variable resilience in the fluctuating ranges of the stock markets. Also, large-scale resilience cycles are relatively sensitive to stability range fluctuations.

### Research methodology

The research method in this research is mixed (qualitative and quantitative) that at first Based on the investigations carried out in relation to Component prioritization I see financial resilience components of mergers and acquisition Using fuzzy Delphi analytical Hierarchy process or FDAHP and basic shape criteria It was taken and generally discussed and exchanged with available experts who were selected based on the criteria derived from the research objectives in a judgmental manner. The simultaneous collection and analysis of data in content analysis gives the researcher the opportunity to think about what data to collect from where and how, which is called judgmental or theoretical sampling, which indicates that the items are selected in a way on the one hand, it increases the quality of concepts and categories, and on the other hand, it determines the next example and the direction of movement. to do Based on the results of the preliminary interviews and the reviewed documents and the instructions given by the interviewees, other experts have been selected. The interviews were opened in the first sessions, and continued in a semi-structured manner in the subsequent sessions, with the identification of related issues. A total of 10 interviews were conducted with experts until theoretical adequacy was achieved. In this study, interviews with expertsswing Bringpropertyand financial engineering was done in Tehran province. Focusing the interviews on the experts' expert opinion regarding the conceptual model's financial resilience components of mergers and acquisition Was. With the identification of themes and the formation of primary categories, the second round of interviews began with the aim of developing

this group of categories. Next, the process of analyzing and coding the interviews will be discussed. In this research, three types of sampling proposed by Strauss and Corbin (1998), open sampling, relational and diversity sampling, and discriminating sampling were used to collect and assist in data analysis. Based on this, the researcher conducted 10 interviews and analyzed their text in three rounds. Finally, after identifying the categories and ensuring their theoretical saturation, it was time to extract the items from the interviews and send the questionnaires from the interviews to the experts. Therefore, by using questionnaires and expert surveys, frequent feedback has been given. Then, in order to overcome the evolution of the shortcomings of the qualitative method from the AHP and Delphi methods, the fuzzy Delphi analytical hierarchical process was developed in this research. Then, using a wide range of values to combine the decision maker's uncertainty and using their attitude as optimistic, pessimistic or moderate to characterize the views of experts to go through the fuzzy Delphi hierarchy process and filter the important components from the point of view. Experts mentioned above, the following steps were done to rank the research components.

Forming the fuzzy pairwise comparison matrix in this step, based on the fuzzy numbers obtained in the previous step, the fuzzy pairwise comparison matrix for the parameters is formed in the form of the example matrix of relation number 1.

1)

$$\bar{X} = [\bar{a}_{ij}]_{n \times n}, \quad \bar{a}_{ij} \otimes \bar{a}_{ji} = 1, \quad i, j = 1, 2, \dots, n,$$

$$\bar{X} = \begin{bmatrix} (1, 1, 1) & \dots & (\alpha_{1j}, \delta_{1j}, \gamma_{1j}) & \dots & (\alpha_{1n}, \delta_{1n}, \gamma_{1n}) \\ \vdots & & \vdots & & \vdots \\ (\frac{1}{\gamma_{1j}}, \frac{1}{\delta_{1j}}, \frac{1}{\alpha_{1j}}) & \dots & (1, 1, 1) & \dots & (\alpha_{2n}, \delta_{2n}, \gamma_{2n}) \\ \vdots & & \vdots & & \vdots \\ (\frac{1}{\gamma_{1n}}, \frac{1}{\delta_{1n}}, \frac{1}{\alpha_{1n}}) & \dots & (\frac{1}{\gamma_{2n}}, \frac{1}{\delta_{2n}}, \frac{1}{\alpha_{2n}}) & \dots & (1, 1, 1) \end{bmatrix}$$

Calculating the fuzzy weight of the parameters: The relative fuzzy weights of the parameters are calculated using equation number 2.

$$\tilde{Z}_i = [\tilde{a}_{ij} \otimes \dots \otimes \tilde{a}_{in}]^{1/n}, \quad \tilde{W}_i = \tilde{Z}_i \oslash (\tilde{Z}_i \oplus \dots \oplus \tilde{Z}_n)$$

2)

In these relations,  $\otimes$  means fuzzy multiplication,  $\oplus$  means fuzzy addition and  $\oslash$  means division of fuzzy numbers, where  $\tilde{W}_i$  is a row vector consisting of a fuzzy weight factor  $i$ . If  $\tilde{M}$  and  $\tilde{N}$  (shown in relation number two are fuzzy numbers, the fuzzy multiplication, addition and division operators are shown in the following relations in the following table:

$$\tilde{M} = (\alpha_{11}, \delta_{11}, \gamma_{11}), \quad \tilde{N} = (\alpha_{12}, \delta_{12}, \gamma_{12})$$

$$\tilde{M} \oplus \tilde{N} = (\alpha_{11} + \alpha_{12}, \delta_{11} + \delta_{12}, \gamma_{11} + \gamma_{12})$$

$$\tilde{M} \otimes \tilde{N} = (\alpha_{11} \times \alpha_{12}, \delta_{11} \times \delta_{12}, \gamma_{11} \times \gamma_{12})$$

$$\tilde{M} \oslash \tilde{N} = \left( \frac{\alpha_{11}}{\gamma_{12}}, \frac{\delta_{11}}{\delta_{12}}, \frac{\gamma_{11}}{\alpha_{12}} \right)$$

De-weighting of parameters: after finding the final weights of each parameter, all the values obtained according to equation number 4 are unambiguous. De-fuzzification is done based on the geometric mean method ( $W_i$  is the weight of the  $i$ -th component).

$$W_i = \left( \prod_{j=1}^n \tilde{W}_{ij} \right)^{1/n} \tag{4}$$

### Analysis of the results I see

In this interview research experts in the field financial resilience components of mergers and acquisition by using three coding methods (re-centered and selective) in theorizing stage, data and information were collected and analyzed. The data obtained from the sources of information (interviews, observations and review of previous researches, documents and texts...) are placed in tables based on coding rules. Coding in grounded theory is a type of content analysis and seeks to find and conceptualize debatable issues that exist among the mass of data. In fact, during the analysis of an interview, the researcher will find out that the interviewees use words and expressions during their conversations that highlight debatable topics about the phenomenon under investigation. As stated earlier, in the current research, the researcher has used the necessary benefits to analyze all the trends of grounded theory (open, central, and selective coding, as well as recording notes and drawing diagrams). The following as an example express turn around.

Classes and related characteristics are stated in them for clarity. For open coding according to the relevant table which includes two parts of interviews and extracted primary codes, secondary codes of concepts and categories extracted from them.

A: As it can be seen in Table No. 2, the effort is to highlight the key points and issues raised by the interviewees. It is emphasized to be extracted. Paying attention to these key points extracted from the text of the interviews helps the researcher with his creativity to choose titles that match the special features related to the research. After the coding, and the implementation of the related steps are done. All the key points of the interviews are given a title as follows.

Table number 2: Summary One of the research interviews (qualitative part)

Subcategory	Verbal statement
social trust	Creating social trust to form a positive social identity among the community
flexibility	The ability to successfully adapt to the challenges ahead
Corporate governance	Obligation to comply with corporate governance rules in highly competitive capital markets
Land use planning	Effective territorial studies can be effective in attracting more resources and increasing the resilience of the banking system
Teaching and learning	Appropriate treatment of employees In the workplace, paying attention to their feelings and properly training employees will have positive effects on how to deal with customers. Here, it is necessary to pay attention to this matter.

Subcategory	Verbal statement
Branding	Creating a strong reflection of cultural products for the target market, social networks and potential customers

At this stage, by creating lines of codes in the stage of coding and using them, 243 items related to the theme and compiling and presenting an applicable and suitable model for financial resilience components of mergers and acquisition It was found.

B: Forming the main categories and classes In this part, the researcher focuses on the relationship between the concepts extracted between the interviews (initial coding) and the basic foundations of the research. (Providing an applicable and suitable model for financial resilience components of mergers and acquisition) pays and tries to adopt a comprehensive, complete, logical and integrated relationship among the mentioned categories in order to Based on that, he configured the main categories and classes and was able to compile the central coding to finally compile and present his desired model. financial resilience components of mergers and acquisition provide

As a result, according to the interview In this research, the researcher is looking for an answer to this question Let it be: dimensions and components the main features of the comprehensive and integrated model financial resilience components Mergers and acquisitions What are they and can the rank and position of each of them be identified?

After determining the categories, the stage of building the general classes of the theory is presented in Table No. 4.

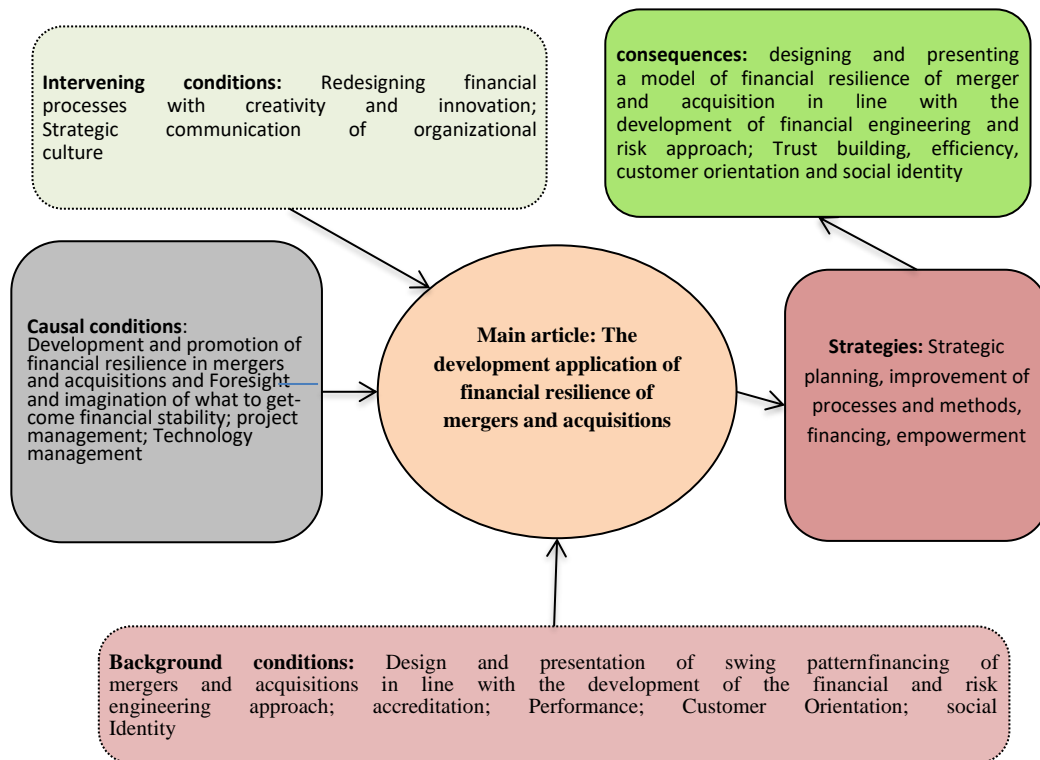
According to the above table, which is formed in five dimensions based on Stravas and Corbin's approach, the number of five dimensions and 15 main categories have been extracted. Therefore, it is found- The results of the research model are presented be made.

**Table 3: Secondary coding of interviews**

Main article	Subcategory
political	Beneficiaries
legal	Corporate governance
the environment	Land use planning
trust building	social trust

**Table 4: Forming general classes of categories**

Dimensions	Main article
the ruling bed	Economic factors
	legal
consequences	trust building
	Performance
	Customer Orientation
	social Identity
Strategies	Strategic planning
	Improving processes and methods
	Financing
	Empowerment
Causal conditions	Financial stability
	Project management
	Technology management
Intervening conditions	Strategic communication
	Organizational Culture



The final model formed from the interviews

After refining the component the results of the research, which is the result of interviews and the fuzzy Delphi method, are based on the fuzzy Delphi method FDAHP, to determine the priority level of the component the research is carried out in the following stepsbe:

**A) Forming a paired matrix of experts' opinions**

- At this stage, first the desired components in the related dimensions of the groupMay be classifiedand then for each group separately, componentimportant and priority are identified. For this purpose, in each group, a square matrix withnThe component extracted from the consensus of experts (nThe number of extracted components of each group) was formed and their opinions were received from the experts regarding the importance of the components in relation to each other. In the following, the fuzzy numbers of experts' opinions were determined in three sections: low limit, middle limit and high limit, and the

average of the fuzzy numbers was determined, which is described in the following section:

**1) Causal conditions: The prioritization of causal conditions was determined with the following steps.**

- First, the average fuzzy numbers of the experts' opinions about the three final components were determined, which are specified in Table 5.
- Calculating the fuzzy weight of the components: after forming the fuzzy pair matrix, at this stage, the fuzzy weight of the components or Zi It was determined that their values are specified in Table 6.
- De-weighting of the components and prioritization: finally, after determining the de-fuzzified value of the weight of the components (Wi), the importance of each research component was determined, the results of which are shown in Table 7 and Table 8.

- As it is clear in the above table, according to the experts, the most important causal factor affecting the development and increase of financial resilience of entrepreneurial businesses is institution building, followed by entrepreneurial awareness.

**Table 5: Average fuzzy numbers related to causal conditions**

AVERAGE	Category one	Category one	Category one	Category two	Category two	Category two	Category three	Category three	Category three
Category one	1.000	1.000	1.000	0.583	0.808	0.915	0.500	0.765	0.892
Category two	1.7153	1.2376	1.0929	1.000	1.000	1.000	0.500	0.628	0.571
Category three	2.000	1.307	1.121	2.000	1.592	1.751	1.000	1.000	1.000

**Table 6: Fuzzy weight of causal condition components**

Z	L	M	U
Z1	0.663	0.852	0.935
Z2	0.950	0.919	0.855
Z3	1.587	1.277	1.252

**Table 7: weighting of components and ranking**

Wi	L	M	U
sum of Zi	3.201	3.048	3.041
W1	0.218	0.280	0.307
W2	0.312	0.302	0.281
W3	0.522	0.420	0.412

**Table 8: Priority of components of causal conditions**

The title of the component	rank	Non-phase weight
fashionYRYTthe technologistY	3	0.2657
fashionYRYTPlan	2	0.2983
Property stabilityY	1	0.4485

**2) Intervention conditions**

Similar to the process of prioritizing the causal conditions, it was also implemented for the intervening conditions, which is mentioned below:

- First, the average fuzzy numbers of the experts' opinions about the final five components were determined, which is specified in Table 9.
- Calculating the fuzzy weight of the components: after forming the fuzzy pair matrix, at this stage, the fuzzy weight of the components or Zi It was determined that their values are specified in Table 10.
- De-weighting of the components and prioritization: finally, after determining the de-

fuzzified value of the weight of the components (Wi), the importance of each of the research components was determined, the results of which are shown in Table 11 and Table 12.

- As it is clear in the above table, according to the experts, the most important intervention factorEffective on the development and increase of financial resilience of mergers and acquisitions, organizational credit for resilience activitiesfinancing, and in the next rank, entrepreneurial culture in line with mergers and acquisitionsbe

**Table 9: Average fuzzy numbers related to intervention conditions**

AVERAGE	Category one	Category one	Category one	Category two	Category two	Category two
Category one	1.000	1.000	1.000	0.583	0.808	0.915
Category two	1.715266	1.237624	1.092896	1.000	1.000	1.000

**Table 10: Fuzzy weight of the components of the intervening conditions**

Z	L	M	U
Z1	0.835	0.931	0.971
Z2	1.197	1.074	1.030

**Table 11: weighting of components and ranking**

Wi	L	M	U
sum of Zi	2.032	2.005	2.001
W1	0.418	0.465	0.485
W2	0.598	0.537	0.515

**Table 12: The priority of the components of the intervening conditions**

The title of the component	rank	Non-phase weight
Entrepreneurial culture	2	0.4552
Organizational credibility	1	0.5488

**3) Background conditions or the governing platform**

Similar to the process of prioritizing the previous factors, the aforementioned process was also implemented for the background conditions, which is described below:

- First, the average of the fuzzy numbers of experts' opinions about the three final components was determined, which is specified in Table 13.
- Calculating the fuzzy weight of the components: after forming the fuzzy pair matrix, at this stage, the fuzzy weight of the components or Zi It was determined that their values are specified in Table 14.
- De-weighting of the components and prioritization: finally, after determining the defuzzified value of the weight of the components (Wi), the importance of each of the research components was determined, the results of which are shown in Table 15 and Table 16.
- As it is clear in the above table, according to the experts, the most important factor of background conditions affecting the development of financial resilience of mergers and acquisitions, economic factors related to resilience and in the next rank is the legal conditions.

**Table 13: Average fuzzy numbers related to the ruling platform**

AVERAGE	Category one	Category one	Category one	Category two	Category two	Category two
Category one	1.000	1.000	1.000	1.573	1.908	1.935
Category two	0.635728	0.524109	0.516796	1.000	1.000	1.000

**Table 14: Fuzzy weight of the components of the intervening conditions**

Z	L	M	U
Z1	1.163	1.240	1.246
Z2	0.860	0.806	0.802

**Table 15: Weighting of components and ranking**

Wi	L	M	U
sum of Zi	2.023	2.047	2.049
W1	0.568	0.605	0.608
W2	0.420	0.394	0.392

**Table 16: Priority of the components of the ruling platform**

The title of the component	rank	Non-phase weight
Economic factors	1	0.5935

The title of the component	rank	Non-phase weight
legal	2	0.4015

#### 4) Strategies or actions and interactions

Similar to the process of prioritizing the previous factors, in order to prioritize the implementation strategies and successful implementation of resilience in entrepreneurial businesses in the conditions before and after failure, a process was implemented as follows:

- First, the average fuzzy numbers of the experts' opinions about the final four components were determined, which is specified in Table 17.
- Calculating the fuzzy weight of the components: after forming the fuzzy pair matrix, at this stage, the fuzzy weight of the components or  $Z_i$  It was determined that their values are specified in Table 18.
- De-weighting of the components and prioritization: finally, after determining the de-fuzzified value of the weight of the components ( $W_i$ ), the importance of each of the research components was determined, the results of which are shown in Table 19 and Table 20.
- As it is clear in the above table, according to the experts, the most important strategy for developing and increasing the financial resilience of mergers and acquisitions is strategic planning for mergers and acquisitions activities, and the next rank is financing..

**Table 17: Average fuzzy numbers related to strategies**

Strategy	Category one	Category one	Category one	Category two	Category two	Category two	Category three	Category three	Category three	Category four	Category four	Category four
Category one	1.000	1.000	1.000	3.587	4.256	6.359	2.514	4.321	7.258	1.023	2.528	6.852
Category two	0.2788	0.235	0.1573	1.000	1.000	1.000	2.415	3.759	4.251	0.257	0.841	0.961
Category three	0.398	0.231	0.138	0.414	0.266	0.235	1.000	1.000	1.000	0.058	0.148	0.258
Category four	0.9775	0.3956	0.1459	3.891	1.189	1.041	17.241	6.757	3.876	1.000	1.000	1.000

**Table 18: Fuzzy weight of strategy components**

Z	L	M	U
Z1	1.742782	2.611204	4.217021
Z2	0.644955	0.928361	0.895275
Z3	0.312634	0.308959	0.302397
Z4	2.845711	1.335185	0.875911

**Table 19: weighting of components and ranking**

$W_i$	L	M	U
sum of $Z_i$	5.546083	5.183708	6.290604
W1	0.314237	0.503733	0.670368
W2	0.11629	0.179092	0.142319
W3	0.05637	0.059602	0.048071
W4	0.513103	0.257573	0.139241
W5	0.314237	0.503733	0.670368

**Table 20: Priority of strategy components**

rank	Non-phase weight	The title of the component
1	0.570746	Strategic planning

rank	Non-phase weight	The title of the component
3	0.23333	Improving processes and methods
4	0.112732	Empowerment
2	0.368314	Financing

**5) consequences**

Similar to the process of prioritizing the previous factors, the priority of the consequences resulting from the flexibility and successful implementation of the resilience project in entrepreneurial businesses in the conditions before and after the failure, a process was implemented as follows:

- First, the average fuzzy numbers of the experts' opinions about the five final components were determined, which are specified in Table 21.
- Calculating the fuzzy weight of the components: after forming the fuzzy pair

matrix, at this stage, the fuzzy weight of the components or  $Z_i$  It was determined that their values are specified in Table 22.

- De-weighting of the components and prioritization: finally, after determining the de-fuzzified value of the weight of the components ( $W_i$ ), the importance of each research component was determined, the results of which are shown in Table 23 and Table 24.

**Table 21: Average fuzzy numbers related to outcomes**

Strategy	category 1	category 1	category 1	category 2	category 2	category 2	category 3	category 3	category 3	category 4	category 4	category 4
category 1	1.000	1.000	1.000	3.587	3.696	3.754	5.914	7.221	6.268	1.323	2.828	7.152
category 2	0.2788	0.2706	0.2664	1.000	1.000	1.000	2.415	3.759	4.251	1.357	1.831	1.951
category 3	0.169	0.138	0.160	0.414	0.266	0.235	1.000	1.000	1.000	0.158	0.248	0.358
category 4	0.7559	0.3536	0.1398	0.737	0.546	0.513	6.329	4.032	2.793	1.000	1.000	1.000

**Table 22: Fuzzy weight of outcome components**

Z	L	M	U
Z1	2.30167	2.947489	3.601743
Z2	0.977668	1.168173	1.219168
Z3	0.324313	0.309169	0.34046
Z4	1.370253	0.939388	0.668895

**Table 23: weighting of components and ranking**

$W_i$	L	M	U
sum of $Z_i$	4.973905	5.364219	5.830266
W1	0.462749	0.549472	0.617767
W2	0.196559	0.217771	0.20911
W3	0.065203	0.057635	0.058395
W4	0.275488	0.175121	0.114728

**Table 24: Priority of outcome components**

The title of the component	Non-phase weight	rank
trust building	0.629548	1
Performance	0.307587	2
Customer Orientation	0.121712	4
social Identity	0.272758	3

As it is clear in the above table, according to the experts, the most important consequences of the development and increase of the financial resilience of mergers and acquisitions are trust building and efficiency is next.

## Result and suggestions

The researcher in the current research after extracting the concepts and categories from the coding done in the method Grand Theory started to present a conceptual framework based on financial resilience models, integration and acquisition, so that after the development of the framework and its comprehensive review, it can use the developed framework as a foundation in order to compile and explain the conceptual model in this research. For this reason, the main findings of the research are presented in two sections: conceptual framework (theoretical literature and research background) and conceptual model (interviews and experts). Also, in order to create a suitable platform for financial activities, it has considered the parameters of financial resilience. For the financial resilience model of mergers and acquisitions, six categories were extracted from the Strauss and Corbin method, and finally, the components were prioritized using the FDAHP method and fuzzy pairwise comparison. Here is a summary of the categorization of the presentation:

**Main category:** The level of participation of senior financial managers and relevant employees in financial resilience is considered in the executive plans and implementation of financial resilience.

The most important factor in Causal conditions, which affects the development and increase of financial resilience of entrepreneurial businesses, is institution building, and the next rank is entrepreneurial awareness. In the intervening conditions, the organizational credit for financial resilience activities is in the first place, and in the next place, the entrepreneurial culture is effective in the direction of mergers and acquisitions. In the prioritization for the background conditions, the economic factors related to resilience have achieved the first rank of effectiveness, and the next rank is the legal conditions in line with resilience. In the direction of strategy, which is one of the important factors of financial resilience in mergers and acquisitions, strategic planning for mergers and acquisitions activities is one of the most important influencing

factors, followed by financing. And finally, for the resilience of mergers and acquisitions and the consequences of developing and increasing financial resilience, building trust is the first priority and the next rank is efficiency.

In the present research, design and presentation of swing patternThe financing of merger and acquisition in line with the development of the financial engineering approach and risk includes: four main dimensions of trust building, efficiency, customer orientation and social identity. From the point of view of experts, the study of the sustainability of mergers and acquisitions in the relevant business continues-Therefore, it seems necessary to givearrive A good and profitable outcome is the result of saving costs and resources, the result of actions and interactions created and influenced by the central class, the ruling platform and the intervening conditions.. Regarding the comparison of the findings of this research with other researchers' findings, it should be noted that this research uses most of the effective components presented on the formulation of the financial resilience of mergers and acquisitions by other researchers, including Pertovi et al. 1401 in the components (foresight, strategic partnership with Fin techniques and existence of risk analysis system, analysis of drivers and identification of future scenarios of the banking sector, investment in fintechs), Gholami et al. Entrepreneurial culture, risk-taking, learning and training), Lan Sun et al. 2022 (ability to save regularly, low rate of income, adequate financial information), Robert L. Clark and Olivia S. Mitchell 2022 (Policies and programs that increase financial resilience can help low- and moderate-income householdshelp them withstand economic shocks and better meet unexpected income needs),who have tried to develop these models have been aligned, so it can be said in the direction of better understanding of the factors influencing the formulation of the swing model The financing of mergers and acquisitions has taken an effective step. On the other hand, this research can also have applications for other organizations by prioritizing the studied indicators, that is, the results of this research can show the role and importance of the ranking of indicators affecting the financial resilience process for managers and employees. Reveal the details of mergers and acquisitions and other sectors related to financial management, so that they can use these factors in their plans in their macro-planning and

formulating strategies for financial resilience and financial management. Therefore, in this research, based on the model and its results, it is suggested to find the weak points and economic turbulences of the organization's/company's business on the basis of the ruling base, and take necessary corrective measures to deal with financial shocks.; To eliminate the financial imbalances that result from endogenous factors or side effects and unforeseen and to use a strong financial system. Based on the results, building trust and strengthening social trust to form a positive social identity; According to the trust of the stakeholders, what will cause the resilience and promotion of the business will be strengthened. Based on the strategy of strengthening and improving processes and methods to identify parallel organizational work and eliminate inefficient cases in the financial and banking sector and strengthen the market by increasing the possibility of replacing products and gathering information in times of crisis, relying on internal organizational talent and financial specialist employees. Based on the causal conditions, paying attention to the conditions causing risk and increasing the tolerance of uncertainties, and preparing managers to face the challenges caused by the crisis and to prevent partial uncertainties, make the system and business more adaptable to environmental changes. Based on the intervention conditions, a memorandum of understanding with international financial credit institutions to provide the necessary credit for the projects to prevent failure and to create a share in business and obtain financial funds from investment, so that in critical conditions, in line with the acquisitions and acquisitions for resilience Necessary steps should be taken to raise funds. steps should be taken to raise funds

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