

## Providing a Model of Privatization with Emphasis on Financial and Non-financial Factors

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**Submit: 2024/06/26 Accept: 2024/12/06**

### Abstract

**Objectives:** This study analyzes the components of privatization, assigns weights to these components, and develops a privatization model based on financial and non-financial factors. Design/methodology/approach: The research employs purposeful, explanatory, and exploratory methods to identify privatization patterns. Utilizing the Delphi method and structural interpretive modeling, data was collected from existing literature and insights gathered from managers and policymakers in privatization organizations. Six criteria were established as key components of privatization: economic factors, financial and accounting criteria, political factors, promotion of the private sector, government performance, and cultural/public dimensions. A hierarchical approach was used to construct a tree structure for evaluating options based on these criteria. Expert Choice software was utilized to prioritize components and propose an optimal model.

**Findings:** The findings indicate that political factors ranked highest among the components, followed by economic factors, financial and accounting criteria, and promotion of the private sector at the second level. Government performance and cultural/public dimensions were rated at the third level.

**Innovation:** The results could significantly impact decision-making in the private sector by enhancing efficiency. By prioritizing key components of privatization, this research suggests potential changes to current decision-making practices within the privatization sector.

**Keywords:** Financial factors, Non-financial factors, Privatization, Privatization components.

## 1. Introduction

Privatization is a process in which ownership of companies and assets is transferred from the public sector to the private sector. This phenomenon is known to increase the efficiency of these entities. The private sector, once it acquires the share of the public sector, becomes one of the pillars of the economy. Active privatization of public sector companies means that financial resources and management control are no longer in the hands of the public, but rather in the hands of private individuals. Resources for these organizations are sourced from the private sector, not the public sector.

With this introduction, it can be said that when the shares of a government company are transferred to a non-governmental institution in privatization programs, although this action is also counted among the statistics of transfers in privatization, it should be noted that privatization, when economically feasible, can be the origin of the transformation in the efficiency of companies. The transfer of assets from the public sector to the private sector and neglecting specialized approaches in the field of financial and non-financial factors that determine privatization require very high costs. Therefore, by explaining the necessity and relevant details in this research, the intention is to draw the pattern of privatization with emphasis on financial and non-financial factors. In this research, an attempt has been made to present a model of privatization with an emphasis on financial and non-financial factors to open new doors on this issue.

## 2. Importance of research

Considering the positive and effective economic activities of governments in the 1950s and 1960s, there was gradual expansion in the range of activities. However, problems such as severe bureaucracy, weak management systems, lack of proper evaluation and audit systems, lack of work motivation, multiplicity of

goals, use of monopolies, and inefficient support arose. These issues caused inefficiency to dominate the economic activities of governments in the 1970s and 1980s, leading to failures in achieving their goals (Zarenejad et al., 2012). Consequently, most governments in the last two or three decades attempted reforms, such as removing support for companies from domestic and foreign competition, eliminating the possibility for companies to obtain cheap credit facilities, creating tough budgetary obstacles, non-commercializing companies, creating independence in the management and administration of companies, reducing customs and trade tariffs, and using performance evaluation mechanisms to hold managers accountable. However, the results of these reforms were unsatisfactory in most countries due to difficulties in increasing efficiency, guaranteeing management independence, and applying financial discipline in government bureaucracy organizations (Malaki, 2022).

As a result, governments widely support the tendency towards the self-organizing mechanism of the market sector, along with policies of liberalization, deregulation, and privatization, including the transfer of ownership and management, as rational strategies to address economic issues and problems and increase efficiency (Mehdizadeh et al., 2021). In Iran, the privatization policy was proposed as the first economic, social, and cultural development program to transfer the government's economic activities to the private sector. Since then, the success of the privatization policy has become a complex economic concern for officials and managers, sparking many discussions (Mehri et al., 2023).

Over the past decades, governments established numerous state-owned enterprises to achieve development goals and maximize social welfare. However, due to unfavorable economic-financial results in recent years, lack of technical-economic and financial justification for government intervention in

some production processes, and financial-economic limitations for managing and undertaking activities, the implementation of the privatization policy for state-owned companies became necessary. The high volume of government involvement in the economy, presence of state-owned companies in unnecessary economic activities, low competitiveness at national and international levels, lack of development in the private sector, weakness of the capital market, and improper resource distribution between government and non-government sectors led to the ineffectiveness of the government. Therefore, transferring economic activities to the private sector and reducing government involvement was proposed as a solution to economic problems and growth.

Financial performance criteria, such as return on equity and average return on equity, are crucial dimensions for evaluating the success of privatization programs. By comparing the performance of companies before and after privatization, the impact of financial and non-financial factors can be assessed to determine the success or failure of privatization. It is essential to consider these key criteria when strategizing privatization to ensure success.

Extensive field data shows

that both financial and non-financial criteria are essential for successful privatization. Establishing a suitable model and understanding these criteria is crucial for effective privatization. Questions that arise in this area include determining the pattern of privatization with emphasis on financial and non-financial factors, as well as its dimensions.

### **3. Literature Review**

Public dissatisfaction with government enterprises is increasing in most countries due to the high prices and poor quality of goods, especially commercial goods and services, and manufactured products. Government enterprises are unable to properly distribute their products and services.

Evidence shows that in most countries, many government enterprises are not only inefficient and unproductive, but also do not help increase the resources and income of the government. Additionally, due to attracting various aids and subsidies, they increase government expenses (Star, 2019).

The inefficiency and poor quality of goods and services provided by some government companies are a result of weak competition or their monopoly position in the market.

There are several economic reasons for privatization, with the most important being the beneficial impact of competition. If privatization does not foster more competition, it may not be very successful (Tribes and Polit, 2019).

In Iran, the policy of privatization and transferring government companies, based on the provisions of Note 32 and the policies of the country's first development plan in 1370, was implemented with the issuance of the first official government statement. To date, there has been no research on identifying privatization components and prioritizing them. While some similar research has been conducted, we can refer to Jandaghi Ardakani et al. (2023) with the title "Investigating financial and non-financial factors influencing investors' decisions in the stock exchange." Their results showed that both financial and non-financial factors impact investors' decisions.

Mousaviyan et al. (1400) concluded in their research titled "Evaluation of the effects of privatization on the financial dimensions and profitability of companies listed on the Tehran Stock Exchange" that privatization has improved the financial dimensions of listed companies.

Rostam Khani et al. (2020) conducted a study titled "Investigation and Estimation of the Impact of Privatization on the Financial Dimensions of Government Companies." Their findings revealed that after privatization, return on equity increased, net profit growth rate increased, and the sales to total assets ratio decreased.

Kaiser et al. (2023) conducted a study titled "The effect of the privatization process on productivity

indicators and financial dimensions of companies." Their results showed that privatization significantly impacted capital productivity and return on assets in the studied companies, leading to an increase in these indicators.

Noti (2023) examined the impact of privatization on financial dimensions, growth, and learning of employees. Their research demonstrated that privatization improved financial dimensions, growth, and learning of employees.

Radik et al. (2021) conducted a study titled "Evaluation of the impact of financial aspects and privatization on the technical efficiency of companies." Their research utilized the random frontier analysis method to estimate companies' technical efficiency and the panel data method to measure the effect of financial aspects on efficiency. Results showed a decrease in technical efficiency of 28 companies after entering the stock market, highlighting the negative and significant impact of liquidity ratios and return on equity on companies' technical inefficiency.

#### 4. Research method

This research is based on the purpose of being explanatory and exploratory. It aims to determine the pattern of privatization, with emphasis on financial and non-financial factors, using the Delphi method and structural-interpretive modeling. The data collection for this research is mixed.

##### 4.1 Statistical population

The statistical population for this research consisted of experts in the privatization organization who met the following criteria: a minimum of 3 years of managerial experience, expertise in the subject matter, availability, and willingness to participate in the study. Therefore, the sampling method employed in this section was purposeful sampling. The rationale behind this choice of sampling method is as follows: Probability sampling is utilized when the researcher aims to

generalize the findings from the sample to the population. However, if generalization is not the goal, purposive sampling can be used. In qualitative research, researchers often opt for purposive sampling. For this study, 15 experts from the privatization organization were invited to participate.

##### 4.2 Research path

According to the studies conducted in this research to identify the components of privatization with an emphasis on financial and non-financial factors, the following factors were obtained during interviews with 15 experts from privatization organizations:

- A. Financial factors include economic factors, financial criteria, and accounting criteria.
- B. Non-financial factors include political factors, promotion of the private sector, government performance, and cultural and public dimensions.

##### 4.3 Identification of effective criteria and hierarchical construction

In the process of identifying these sub-criteria, the content analysis approach was used. There were a total of 78 sub-criteria in the form of factors related to the optimization of economic frameworks in the country, the development of the country's economic activity environment, financial and accounting dimensions, internal policy framework, political perspective, current policy framework, international and extraterritorial politics, political challenges, promotion of private sector capabilities, evaluation of government performance in supporting the private sector, management standards, entrepreneurship and support standards, laws and regulations, and development of privatization culture and actions in these areas.

To validate the findings of the research, the content validity index (CVI) developed by Waltz and Basel was used. Experts were asked to rate the

relevance of each item on a four-part spectrum: 1-not relevant; 2-needs major revision; 3-relevant but needs revision; 4-fully relevant.

The number of experts who chose options 3 and 4 was divided by the total number of experts. If the

resulting value was less than 0.7, the item was rejected. If it fell between 0.7 and 0.79, it needed revision. If it was greater than 0.79, it was considered acceptable.

**Table 1. Experts' references to privatization components according to financial and non-financial factors**

under the criteria	CVI	Experts	Situation
Planning to liberalize the economy of the country	0.86	13	✓
Focusing on the development and promotion of the capital market and stock market	0.956	11	✓
Planning for the full use of the capacities of banks and financial institutions	0.968	10	✓
Planning to update the relevant administrative cycles and remove obstacles in the way of privatization	0.908	8	✓
Providing the right space and platform to accelerate and facilitate privatization	0.812	12	✓
Planning for development and integrated pricing system	0.971	9	✓
Creating a consistent approach among planning and policymaking organizations with implementers	0.917	9	✓
Planning to create and promote stability in the pillars of the economy	0.936	10	✓
Focus on creating employment and developing entrepreneurship	0.877	9	✓
Planning to reduce the economy's dependence on oil	0.983	8	✓
Planning to connect companies with the international market	0.968	9	✓
Emphasis on ensuring investment security and the entry of the private sector into the market	0.843	9	✓
Productivity and high efficiency of private sector investment	0.829	7	✓
Continuous support to the private sector with the approach of empowering the private sector to compete	0.907	9	✓
Defining the standard and comprehensive financial and accounting structure for companies before handover	0.881	7	✓
Emphasis on complete and transparent financial information of the companies included in the privatization plan	0.983	8	✓
Complete and transparent access of regulatory bodies to information and financial transactions of companies and organizations included in the plan	0.892	11	✓
Emphasis on the competitive cost in the audit of companies and organizations included in the privatization plan	0.938	10	✓
Emphasis on the detailed and specialized study of asset pricing before handing over	0.926	12	✓
Using the benefit-cost standard based on the latest specialized accounting guidelines	0.784	8	✓
Continuous and accurate auditing and screening of existing discrepancies and explicit and clear actions to prevent repetition	0.764	11	✓
The unanimity of the implementation of Article 44 of the Constitution even despite the shift in power of political factions	0.968	9	✓
Alignment of decision-making and policymaking authorities in the field of privatization with the political dimensions of the country	0.91	10	✓
Emphasis on the special interaction between related institutions and decision-makers in the field of privatization	0.885	7	✓
The existence of common goals among officials executives and planners in the field of privatization	0.86	8	✓
Emphasis on political stability	0.946	10	✓
Accurate explanation of the ruling political goals and approaches	0.987	11	✓
Political flexibility at the level of the country and the degree of society's companionship and alignment with the thinking that governs domestic politics	0.885	6	✓
Emphasis on political support for privatization	0.892	8	✓

under the criteria	CVI	Experts	situation
Emphasis on the pillars of the country's foreign policy and adherence to political ideals	0.891	6	✓
Emphasis on the detailed analysis of the policies of the countries in the region and other related countries	0.968	9	✓
Planning to use domestic capacities and privatization to overcome international sanctions	0.88	8	✓
Avoiding any influence of individuals and factions in privatization planning	0.862	12	✓
Avoiding any consolidation and prescriptive planning in the field of privatization	0.878	9	✓
Focusing on supporting the alignment of privatization plans and meeting the general needs of the people	0.86	8	✓
Preventing political approaches and decisions and changing existing approaches	0.833	9	✓
Focus on continuous support of the private sector in the frameworks	0.86	9	✓
Planning to eliminate possible rents in the course of privatization	0.956	7	✓
Defining specialized frameworks to strengthen and develop privatization infrastructures	0.979	6	✓
Focus on strengthening the non-governmental sector and tackling the underground economy	0.99	11	✓
Planning for the development of organizational structure in private companies	0.935	13	✓
Planning to define specialized standards in privatized companies	0.866	8	✓
Planning for private companies to enter the capital market	0.825	9	✓
Existence of legal incentives for private sector investment	0.893	9	✓
Focus on continuous support of the private sector in the frameworks	0.799	6	✓
Planning to eliminate possible rents in the course of privatization	0.816	8	✓
Defining specialized frameworks to strengthen and develop privatization infrastructures	0.886	9	✓
Focus on strengthening the non-governmental sector and tackling the underground economy	0.86	11	✓
Planning for the development of organizational structure in private companies	0.946	11	✓
Planning to define specialized standards in privatized companies	0.86	8	✓
Planning for private companies to enter the capital market	0.86	12	✓
Existence of legal incentives for private sector investment	0.843	12	✓
Planning to create and upgrade the necessary infrastructure for the development of privatization	0.831	13	✓
Making the private sector more efficient with scientific planning and using public capacities	0.902	8	✓
Cohesion of the public sector to cooperate with the private sector and use existing capacities	0.827	15	✓
Focusing on improving and upgrading the necessary standards for the transfer of equity shares	0.888	12	✓
Separating the duties of the private and public sectors and equipping the private sector to play an effective role in economic development	0.793	13	✓
Planning to define specialized frameworks for the entry of foreign investments	0.797	9	✓
Defining the rules and regulations necessary to make the companies subject to the privatization plan accountable	0.832	12	✓
Using the will of the government to clarify the activities of companies and organizations included in the privatization plan	0.891	14	✓
Paying special attention to the cooperative sector and developing regulations and specialized rules for the cooperative sector	0.956	10	✓
Planning for the use of knowledge and expertise, following the development needs of the companies included in the plan	0.798	9	✓
Planning to properly deal with the resistance of underemployed public sector managers in the field of privatization	0.824	14	✓
Use of expert working groups and decisions based on real data to streamline privatization	0.837	12	✓
Taking advantage of the research and scientific management capacities of companies and organizations included in the privatization plan	0.86	10	✓
Focusing on the continuous monitoring of the activities of the included companies and the existence of legal solutions to monitor and deal with the shortcomings or violations in this area.	0.854	13	✓

under the criteria	CVI	Experts	Situation
Accurate reporting of the performance of companies and organizations included in the privatization plan	0.869	11	✓
Development of a comprehensive tax and property system to control the financial activities of companies and organizations included in the privatization plan within legal frameworks	0.906	10	✓
Planning to promote support and financial incentives to motivate the entry of the private sector into government processes	0.912	8	✓
Paying attention to visas for private sector entrepreneurs and defining specialized support frameworks	0.816	12	✓
Using tax and capital incentives to motivate the private sector	0.968	9	✓
Reducing the benefit of facilities granted to service sectors included in the privatization plan	0.882	9	✓
Legal protection of the companies and organizations involved after the handover	0.956	10	✓
Transparency and comprehensiveness of laws and regulations in the field of privatization	0.968	9	✓
Protections of Labor Laws and Social Security	0.961	8	✓
Reducing and removing customs barriers, trade barriers, and financial transactions of the companies included in the plan within the framework of governance laws	0.827	9	✓
Continuous and organized controls by supervisory institutions on the performance of companies and organizations subject to the privatization plan	0.968	9	✓
Focusing on scientific and practical studies based on up-to-date and documented data before handing over	0.903	7	✓
Invoking religious and belief dimensions and following Sharia and customs in privatization programs	0.797	9	✓
Planning to prevent ethnic and cultural views from entering the privatization process	0.832	12	✓
Emphasis on promoting public trust in the private sector	0.891	14	✓
Laying the groundwork for the entry of small capital into the privatization process	0.956	10	✓
Emphasis on clarifying the goals of privatization and promoting public knowledge in this field	0.798	9	✓
Eliminating value conflicts between the government and the private sector	0.824	14	✓
Planning to avoid past unsuccessful experiences in privatization	0.837	12	✓
Plan to avoid any chaos or resistance to change	0.86	10	✓

Source: Research finding

Based on the suggestions provided by experts in the feedback forms, as well as through open-ended and selective coding, the components of privatization were identified. Emphasis was placed on both financial and non-financial factors, resulting in a total of 78 components under the main criteria outlined in the table above. This provides certainty for the next steps, which will be carried out in rounds. The criteria and corresponding numbers are detailed in the table below.

Privatization components were identified by focusing on both financial and non-financial factors using a Delphi panel questionnaire. The arithmetic mean of important criteria was used to compare the dimensions. Experts then used verbal variables such as

"very much," "much," "unimportant," "little," and "very little" to express the level of importance of each criterion from their perspective. Based on the proposed option and defined linguistic variables, the results from analyzing the questionnaire responses were used to calculate the average of the components. If the difference between the averages in the first and second rounds is less than the threshold of 0.1, the polling process is stopped.

**Table 2. Dispersion of questions related to research variables**

Component	Arrangement	N
Economic factors	C1-C14	14
Financial and accounting standards	C15-C21	7
Political factors	C22-C36	15
Promotion of the private sector	C37-C44	8
Government performance	C45-C69	25
Cultural and public dimensions	C70-C78	9
Total	C1-C78	78

Source: Research finding.

**Table 3. The difference between the geometric means of the second and third rounds**

AVE2	AVE1	DIFF	Code	AVE2	AVE1	DIFF	Code	AVE2	AVE1	DIFF	code
4.3333	4.4	-0.0667	C53	4	3.9333	0.0667	C27	3.8	3.8667	-0.0667	C1
4.2	4.2667	-0.0667	C54	4	4	0	C28	4.0667	4.0667	0	C2
3.8	3.8	0	C55	4.0667	4	0.0667	C29	4.4	4.4667	-0.0667	C3
4.2667	4.2667	0	C56	4.1333	4.1333	0	C30	4.2	4.2	0	C4
4.0667	4	0.0667	C57	3.4667	3.5333	-0.0667	C31	3.8667	3.8667	0	C5
3.5333	3.4667	0.0667	C58	4.2	4.2667	-0.0667	C32	4.3333	4.4	-0.0667	C6
3.5333	3.4667	0.0667	C59	3.7333	3.8	-0.0667	C33	3.8	3.8667	-0.0667	C7
4	3.9333	0.0667	C60	3.6667	3.6	0.0667	C34	4.4	4.4	0	C8
4.1333	4.1333	0	C61	3.4	3.4	0	C35	4.2	4.2667	-0.0667	C9
3.7333	3.8	-0.0667	C62	3.7333	3.6667	0.0667	C36	4	4	0	C10
3.7333	3.6667	0.0667	C63	4.4667	4.4	0.0667	C37	3.8	3.8667	-0.0667	C11
4.4	4.4	0	C64	3.8	3.8667	-0.0667	C38	3.8	3.8	0	C12
3.8	3.8667	-0.0667	C65	4.4	4.4	0	C39	4.3333	4.4	-0.0667	C13
4.1333	4.0667	0.0667	C66	4.2	4.2667	-0.0667	C40	4.1333	4.1333	0	C14
4	4	0	C67	4	4	0	C41	4.2667	4.2667	0	C15
3.5333	3.4667	0.0667	C68	3.8	3.8667	-0.0667	C42	3.8667	3.8	0.0667	C16
4.5333	4.6	-0.0667	C69	3.8	3.8	0	C43	3.9333	3.8667	0.0667	C17
4	4	0	C70	4.3333	4.4	-0.0667	C44	4.0667	4	0.0667	C18
4	3.9333	0.0667	C71	4.1333	4.1333	0	C45	3.9333	3.9333	0	C19
4	4	0	C72	4.2667	4.2667	0	C46	4.2667	4.2	0.0667	C20
4.0667	4	0.0667	C73	3.8667	3.8	0.0667	C47	3.5333	3.4667	0.0667	C21
4.1333	4.1333	0	C74	3.9333	3.8667	0.0667	C48	4.1333	4.0667	0.0667	C22
3.4667	3.5333	-0.0667	C75	4.0667	4	0.0667	C49	4	4	0	C23
4.2	4.2667	-0.0667	C76	3.9333	3.9333	0	C50	3.5333	3.4667	0.0667	C24
3.7333	3.8	-0.0667	C77	4.2667	4.2	0.0667	C51	4.5333	4.6	-0.0667	C25
3.6667	3.6	0.0667	C78	4.4	4.4667	-0.0667	C52	4	4	0	C26

Source: Research finding.

Because the difference in the average opinion of the experts in the last two rounds is equal to or less than 0.1, it can be said that the experts have reached a

consensus on the components of privatization, with an emphasis on financial and non-financial factors.



#### 4.4 Kendall's coordination coefficient

In this research, Kendall's coefficient of concordance was utilized to assess the level of agreement among panel members. Kendall's coefficient of concordance is a measure used to determine the extent of agreement and concordance among multiple rank categories associated with N objects or individuals. By employing this measure, it becomes feasible to identify rank correlation among K rank sets. This measure is particularly valuable in studies focusing on "internal validity." Kendall's coefficient of concordance indicates that individuals who have ranked multiple categories based on their significance have applied consistent criteria in evaluating the importance of each

category and are in agreement with one another in this regard.

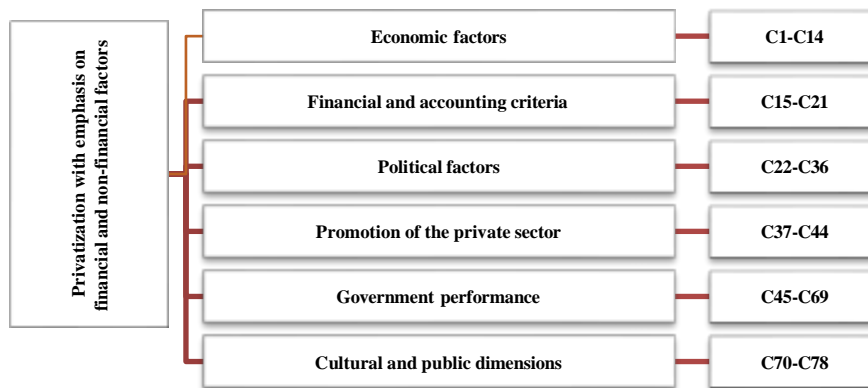
Considering the Kendall coefficient is over 50%, along with the results of a significant number of dimensions falling within the acceptable range of less than 0.05 in the third round, it is evident that the experts have reached a consensus in this round. Therefore, there is no need to continue the Delphi process. The hierarchical trees display indicators and decision options, leading to a series of pairwise comparisons to determine the weight of each factor in relation to competing options. Ultimately, the AHP logic combines the matrices obtained from pairwise comparisons to arrive at the optimal decision

**Table 4. Statistical test of Kendall's correlation coefficient**

Criterion	round2		round1		df	Arrangement	N
	Sig	W	Sig	W			
Economic factors	0.028	0.591	0.048	0.432	13	C1-C14	14
Financial and accounting criteria	0.017	0.542	0.042	0.352	6	C15-C21	7
Political factors	0.026	0.561	0.055	0.374	14	C22-C36	15
Promotion of the private sector	0.022	0.586	0.037	0.397	7	C37-C44	8
Government performance	0.041	0.539	0.066	0.364	24	C45-C69	25
Cultural and public dimensions	0.009	0.608	0.022	0.459	8	C70-C78	9

Source: Research finding.

**Table 5. Matrix table of pairwise comparison of criteria and hierarchical tree of privatization components with emphasis on financial and non-financial factors**



Source: Research finding.

In the AHP method, the weight of each criterion is not assumed to be the same. For this reason, Professor Saati invented a method that can calculate and measure the effect of criteria on each other and the entire research operation. The weight of each criterion will be determined by the expert judgment group. The working method is the same as the previous round, but first, the first-level criteria will be recorded in a table that has two vertical and horizontal columns based on the preference table. In this round, the data collection operation ends, and the data is introduced to the software for calculation. Based on the output of the Expert Choice software and the analysis of the

research questionnaires, the value matrix has been determined as shown in the table below.

The Interpretive Structural Model (ISM) was introduced by Andrew Sage in 1977. This method involves identifying the fundamental factors first, and then, using the presented method, determining the relationships between these factors and how progress can be achieved through them. ISM analyzes the relationships between indicators by examining criteria at various levels. The ISM model can determine the interdependence between indicators, whether individually or collectively.

**Table 6. Pairwise comparison of options**

Rank			A1	A2	A3	A4	A5	A6
Second	0.202	Economic factors A1						
Fourth	0.171	Financial and accounting criteria A2	3.00					
First	0.226	Political factors A3	4.00	5.00				
Fifth	0.119	Promotion of the private sector A4	3.00	3.00	3.00			
Sixth	0.084	Government performance A5	3.00	4.00	1.00	5.00		
Third	0.191	Cultural and Public Dimensions A6	4.00	3.00	5.00	3.00	4.00	

Source: Research finding.

#### 4.5 Forming the structural self-interaction matrix

The Structural Self-Interaction Matrix (SSIM) consists of dimensions and indicators of study, which are compared using four modes of conceptual relations. This matrix is completed by process-oriented experts and specialists. The information obtained is based on the method of interpretive structural modeling for summation, resulting in the final Structural Self-Interaction Matrix. Interpretive Structural Modeling (ISM) logic operates using non-parametric methods and is frequency-based.

To clarify, the table above is being used to illustrate the structural self-interaction matrix of all three main criteria being investigated. The structural self-interaction matrix of the research variables is as follows:

**Table 7. Symbols used for the structural autocorrelation matrix**

(O <sub>ij</sub> )	(X <sub>ij</sub> )	(A <sub>ij</sub> )	(V <sub>ij</sub> )
lack of communication	Two-way relationship	Variable j affects variable i	the variable affects variable j

Source: Research finding

The resulting matrix is created by converting the structural self-interaction matrix into a binary matrix with values of zero and one. To generate the resulting matrix, the signs X and V in the self-interaction matrix are replaced with the number one, while the signs A and O are replaced with the number zero in each row. This resulting matrix is referred to as the initial resulting matrix, with the main diagonal elements all equal to one. Once the matrix has been transformed into a binary matrix, a secondary matrix needs to be created. In the resulting matrix, secondary connections

must be verified for accuracy. For example, if A influences B and B influences C, then A should also influence C. If direct effects were expected based on

secondary connections but were not observed in practice, the table should be adjusted to reflect these secondary relationships.

**Table 8. Structural self-interaction matrix of privatization components with emphasis on financial and non-financial factors**

	A1	A2	A3	A4	A5	A6
Economic factors A1						
Financial and accounting criteria A2	X					
Political factors A3	A	A				
Promotion of the private sector A4	X	O	A			
Government performance A5	V	V	V	O		
Cultural and Public Dimensions A6	V	V	V	O	A	

Source: Research finding.

**Table 9. The Reachability matrix of the privatization components with emphasis on financial and non-financial factors**

	A1	A2	A3	A4	A5	A6
Economic factors A1	0.00	1.00	1.00	1.00	0.00	0.00
Financial and accounting criteria A2	1.00	0.00	1.00	1.00	0.00	0.00
Political factors A3	1.00	0.00	0.00	1.00	0.00	0.00
Promotion of the private sector A4	1.00	1.00	1.00	0.00	0.00	0.00
Government performance A5	1.00	1.00	1.00	1.00	0.00	1.00
Cultural and Public Dimensions A6	1.00	1.00	1.00	1.00	0.00	0.00

Source: Research finding.

#### 4.6 Drawing the influence-dependence power diagram

In the ISM model, the interrelationships and influence between criteria, as well as the relationship of criteria at different levels, are clearly depicted. This aids managers in gaining a better understanding of the decision-making environment. To identify key criteria of influence and dependence, these criteria are organized into a final access matrix, which is utilized in Mic Mac analysis.

To determine the relationships and hierarchy of criteria in the ISM interpretive structural model, the

outputs and inputs for each criterion must be extracted from the matrix. Once

the achievement set and prerequisite set are identified, the intersection of these two sets is calculated. The first variable where this intersection equals the achievable set (outputs) will be considered the first level, indicating the elements with the most influence on the model.

After identifying the first-level indicators, these elements are removed, and the process of calculating the achievement and prerequisite sets continues. This process is repeated until all indicators have been removed.

**Table 10. influence-dependence of privatization components, with emphasis on financial and non-financial factors.**

	Set ahead	Set back	Subscription	Level
A1	1,2,3,4	1,2,3,4,5	1,2,3,4	2
A2	1,2,3,4	1,2,4,5	1,2,4	2

	Set ahead	Set back	Subscription	Level
A3	1,3,4	1,2,3,4,5	1,3,4	1
A4	1,2,3,4	1,2,3,4,5	1,2,3	2
A5	1,2,3,4,5	5	5	3
A6	1,2,3,4,6	5	5	3

Source: Research finding.

### 5. Conclusion

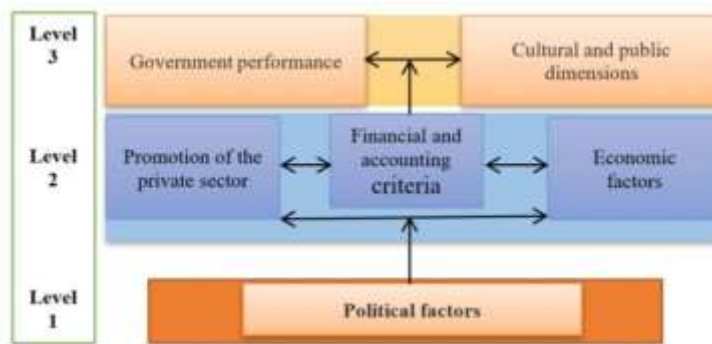
Based on theoretical foundations and data collected from experts in privatization organizations, as well as investigations conducted on a paired comparison questionnaire of examined criteria, the results indicate that political factors, with a value of 0.226, are the top priority among privatization components and require more attention according to expert opinion. Following political factors, economic factors rank second with a value of 0.202, cultural and public dimensions rank third with a value of 0.191, financial and accounting criteria rank fourth with a value of 0.171, promotion of the private sector ranks fifth with a value of 0.119, and government performance ranks sixth with a value of 0.084. The prioritization of privatization components, focusing on financial and non-financial factors, also shows an acceptable compatibility rate of 0.007. These results align with previous domestic studies by Jandaghi Ardakani et al. (1402), Bonabi Qadim (1402), Larabi et al. (2019), and foreign studies by

Kaiser et al. (2023), Nuti (2023), Radik et al. (2021), Barut et al. (2023), Liahmad et al. (2021), Furlanetto et al. (2019).

Through interpretive structural analysis and reanalysis of research findings, a model is proposed

with three levels as a model of privatization components emphasizing financial and non-financial factors. Political factors are placed at the highest level, followed by economic factors, financial and accounting criteria, and promotion of the private sector at the second level, and government performance and cultural and public dimensions at the third level. This model differs from hierarchical analysis as it aims to find the optimal model of a subject, whereas hierarchical analysis determines the priority of criteria. These results have the potential to influence decisions in the private sector, improving efficiency and prompting changes in decision-making practices for privatization sector managers.

Table 11. The final model of privatization components, with emphasis on financial and non-financial factors



Source: Research finding.

## 6. Recommendations and suggestions for future research

Based on the findings of the present study, the following recommendations for future research are outlined:

- Identification and prioritization of factors that contribute to successful privatization
- Determination of the necessary infrastructure for facilitating privatization development
- Identification and prioritization of strategies to enhance the efficiency of infrastructure processes in privatization development
- Exploration of the ideal balance between privatization processes and the government's social responsibilities
- Development of a customized model for implementing effective privatization solutions at the local level
- Examination of the components of privatization, with a focus on financial and non-financial factors, utilizing qualitative research methods.

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