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COMPARATIVE STUDY AND PRESENTATION OF RISK MANAGEMENT AND ASSESSMENT MODEL IN THE ARRANGEMENT OF INTERNATIONAL PARTNERSHIP CONTRACTS IN OIL AND GAS PRODUCTION

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***ABSTRACT*:**

The aim of this study was to conduct a comparative study and present a risk management and assessment model in the arrangement of international partnership contracts in oil and gas production. The research method in the qualitative part is developmental in terms of purpose and descriptive in nature and comparative studies, and in the quantitative part, considering its objectives, it is an applied research, in which 41 sub-factors were identified along with 6 sub-factors, and finally the importance of each was determined by the fuzzy mapping method. Therefore, the results of the research, the critical factors for the success of risk management of oil and gas contracts are respectively: "stability, attention to governing laws and regulations and obligations" 12 times, "referral to arbitration, environmental uncertainty and contract management" 6 times each, "risk classification, contract life cycle and assessment of competitors" 4 times each.

***Keywords**: Risk management, risk assessment, oil and gas industry.*

INTRODUCTION

Exploration, development and production of oil and gas fields are often very risky, capital intensive and require a long time to operate. The risks of oil projects in their life cycle are classified into three groups: financial, political and geological risks. While geological risks decrease after field exploration, political and financial risks increase. One of the reasons for this is the transfer of bargaining power between the investor and the host government during the exploration and exploitation period. In the exploration phase and before the field is commercialized, the investor's bargaining power is greater than that of the host government, but in the production phase, the investor's risk increases and its bargaining power decreases. The contract life cycle is divided into the stages of design, formation, implementation, control and contract closing. Detailed contract management requires that the contract be reviewed comprehensively and thoroughly. In this cycle of the contract life cycle, contractual risks must be identified and assessed and appropriate solutions considered for them. It is not easy to identify, classify, and manage contract risks at the contract formation stage, but this important matter should be achieved as much as possible so that it does not affect other stages of the contract life cycle. The risk-bearing capacity of governments and companies is different. Therefore, fair distribution of risk is one of the most important components of contract evaluation. If the risk imposed on the contractor is not proportional to the reward paid, then the contract will not be optimal and the contractor will not have sufficient motivation for high-risk activities such as drilling in complex and difficult areas or projects to improve the recovery factor. Since none of the production sharing contracts in the country have achieved the desired results, these contracts have been examined in this study and a risk management and assessment model has been presented in the preparation of international oil and gas production sharing contracts.

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Iran is the third oil-rich country in the world, with proven crude oil reserves of 138.4 billion barrels, equivalent to 11.5% of the world's oil reserves (Begoz and Soleimani, 2013). Due to the high costs of the upstream oil industry or in some cases the lack of access to appropriate technology for the exploration and exploitation of its oil and gas resources, it uses the help of oil investment companies and, based on the physical characteristics of the oil reservoirs and the political and legal conditions of the country, it concludes contracts with these companies in one of the concession, partnership and service formats (Kargarm-e-Mtalaq et al., 2018). The form of contracts before the revolution was mostly concession and participation in production, but after the victory of the Islamic Revolution, due to political and legal changes in the country, the form of oil contracts was also changed and became reciprocal service contracts, and partnership and concession contracts in the oil sector were prohibited by the Constitution of the Islamic Republic (Mostafooi et al., 2013). Although cross-sale contracts are used in Iran, production participation contracts are very common in different places (Kazemi Najafabadi and Nasseri, 2019), and investing companies show great interest in this type of contract, while cross-sale contracts are not very attractive to them (Shiravi and Taghizadeh, 2019). In this regard, the contractual system of various types of international oil and gas contracts provides a useful comparative study. In addition, in the new international conditions, the new structures that have been formed in the oil and gas industry are very vital and decisive for national oil companies and oil-producing countries (Tehran et al., 2010). On the other hand, forecasts show that the demand for crude oil will reach 99 million barrels per day between 2009 and 2035. Meanwhile, oil production is predicted to be 96 million barrels per day in 2035. In that case, it is very necessary to consider how to produce oil from reserves with more knowledge of the situation and geographical distribution of the world's oil reserves, because in 2035, crude oil will still be the most important source of energy supply in the world, so that about 30 percent of the world's total energy consumption will be provided through crude oil.

Finally, to examine the risk dimensions of international electronic oil and gas contracts in order to further expand and develop the use of this type of contract, increase transaction transparency, improve the level of use of this type of contract, encourage domestic traders to use this type of contract, and ultimately consolidate and increase the short-term and long-term benefits of the Islamic Republic of Iran, which is thus introduced as one of the most effective and growing methods of oil and gas trading in oil and energy exchanges. The risks in a project can have different aspects. Also, risk management methods can have different aspects such as financial, technical, legal, etc. In this thesis, we are trying to examine risk management methods. As we know, the risks in a project can also have legal aspects, for example, financial disputes between the parties may require the use of a dispute resolution method. On the other hand, the choice of contractual form for investment in the upstream sector of the oil industry is limited in some countries and only some contractual forms can be used. Therefore, the use of an efficient contractual method should be based on the host country's contractual system. Contract terms are also of great importance, and each of them can have different legal effects. Therefore, their inclusion must be done carefully to minimize project risks. The discussion of contract management and the creation of standard contract samples (modeling) for use in the upstream sector of the oil industry is also very important (Roshni et al., 1401). Contracts related to the oil industry are very complex and require skills, experience, and knowledge for project management and financing. Also, awareness of the laws and regulations of the host government and a clear inclusion of the rights and obligations of the parties to the contract are also necessary for efficient contract management (Junaidi et al., 1401). The choice of contract type in oil projects is also important for reasons such as how to divide the risk between the parties, the possibility of conflict with the host government's regulations and laws, the transparency of the contract clauses, the provision of an efficient method for resolving disputes, the degree of flexibility of the contract, its performance guarantees, etc. We believe that any issue that is stated in the contract between the parties can have a legal aspect; therefore, the role of a lawyer in risk management is important. In this regard, the aim of the present study is to answer the main question of what is the comparative study and presentation of a risk management and assessment model in the preparation of international contracts for participation in oil and gas production?

Blandi et al. (1402) conducted a study entitled the position of the international contract “participation in investment” in the Iranian oil industry. Participation in investment is a contract by which two or more business partners participate in the implementation of a specific economic project and invest in that project through cash or non-cash contributions. “Participation in investment” is one of the international contractual methods that can also be used in the oil industry. In Iran, although this method was permitted according to the 1957 Oil Law, with the change in oil laws, first in the 1974 Oil Law, the use of this method in the “upstream operations” of the oil industry was prohibited, and then in the 1987 Oil Law, the use of any type of participation method in the oil industry was generally prohibited. The 1390 Oil Law, in addition to amending some articles of the 1366 Oil Law, has repealed the provisions of the 1353 Oil Law. Although the prohibition on the use of participatory methods

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under the aforementioned law remains in force, it seems that, according to the new laws, the use of this contractual model in the oil and gas industry is permitted. As with the unveiling of new oil contracts in the post-JCPOA environment, in which one of the country's main priorities has been to attract foreign participation in investment, the newly approved laws, some explicitly and some implicitly, have permitted the use of this contractual model in oil contracts. In this article, after mentioning the elements of this type of contract and mentioning the history of the use of this contractual model in the oil industry, an attempt will be made to analyze the new laws and examine the legislator's position on the possibility of using this contractual model in the oil and gas industry.

Begoz and Soleimani (1401) conducted a study entitled Contractual Requirements in Oil and Gas Contracts. An assessment of the evolution of upstream oil and gas industry contracts in the country during the establishment of the Islamic Republic indicates that during the years 1358-1371 AH, almost no conventional and long-term contracts were concluded. While during the period 1392-1372 AH, three generations of Iranian service contracts known as "mutual purchase" were designed and implemented. In our country, considering the presence of talented human resources and abundant oil and gas reserves, determining a contractual model that meets the needs of the country, the constitution, and at the same time creating a basis for economic interaction with today's modern world is necessary and essential. The above article contains principles that should be used in upstream oil and gas service contracts in order to achieve the above goals. The principles under discussion should, in principle, be sought in oil contracts, constitutional and statutory laws, treaties, and general legal principles.

Mostafavi et al. (1400) conducted a study entitled Risk Analysis in Iranian Oil Contracts from the Investor's Perspective and Its Effects on the Justification of Upstream Investment. The above article identifies the uncertainties and risks in the chain of oil and gas field development activities and then quantifies each of the identified risks using a sensitivity analysis method. Also, by comparing the parameters of the Iranian oil contract with the parameters of the Qatar Production Sharing Contract model, Iraqi technical services, and the counter-purchase contract, amendments to the existing parameters of the Iranian oil contract are proposed. After applying the mentioned amendments to the contract parameters, the standard deviation obtained for the financial indicators of the government and the investor decreased together, which confirms the systematic reduction of contract risk and the improvement of contracts for both parties to the contract. In addition, all parties involved in Iranian oil contracts, whether as the first party to the contract or as the second party to the contract, generally agreed to the maximum extent with the proposed amendments.

Jing'an (2022) conducted a study on the oil and gas drilling engineering contract management system in the Nanchuan and Binchang blocks of Sinopec. The results showed that the turnkey drilling contract management mode has been generally accepted by Sinopec. Considering the problems in high-risk wells using this mode, such as long non-production time, long drilling cycle, low application of new technology, and weak technical management of the oil company, the innovative drilling engineering risk management system with "1 program + 1 core + 2 support measures + 1 platform" has been applied in the Nanchuan block of Sinopec East China Oil and Gas Company and the Binchang block of Sinopec North China Oil and Gas Company. Considering the complex technical problems common in the two blocks, such as poor drilling, low return on investment, high lost circulation, and severe well collapse, the day rate contract management mode and technology have been integrated to provide a series of drilling engineering demonstration technologies, including artificial intelligence-based drilling acceleration technology, total loss formation measurement technology, low-viscosity, high-shear oil-based drilling fluid system, as well as strong-binding, high-retardancy, film-forming, and anti-fallout drilling fluid system, which support the solution of technical problems limiting the acceleration of risk. The program has brought direct benefits of 335 million yuan in three wells in the Nanchuan Block of China East Oil and Gas Company and the Bingchang Block of China North Oil and Gas Company, which provides reference experience for the promotion of the drilling engineering contract management system.

Kassim (2022) conducted a study entitled Risk Management Assessment in Oil and Gas Projects Using Structural Equation Modeling. The developed model was considered fit because the result of the model determination coefficient test analysis was 0.720, indicating that the developed model meaningfully explained the relationship between the causes of risks and their impact on success. Projects. The internal risk categories that have the most impact include project management, feasibility study design, and availability of resource materials. The main elements of external risk include political, economic, and security considerations. The developed risk factor model effectively explains the impact of risk factors on the success of construction projects according to statistical and expert validation tests. Saptarini and Naigyol (2022) conducted a study titled Risk Management in an Oil and Gas Field Development Project with Marginal Resources: A Case Study of the Baleg Field in East Kalimantan. This

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study covers risk assessment based on the selected project scope that has been technically validated. The risk assessment determines the main risks in oil field development by considering the available historical data of oil price, drilling cost estimate, and facility cost estimate. These risks should be monitored to ensure that the oil field development as planned creates value for the shareholder or at least prevents losses. The most significant risks identified in this study are oil prices below the economic assumption, failure to meet production targets, and the absence of a firm gas sales contract to absorb production. The company may focus on these risks to manage the risk of future project development.

RESEARCH METHOD

Qualitative Section: The research method in this section is developmental in terms of its purpose and descriptive and comparative in nature.

Quantitative Section: In this section, the research method is applied research in terms of its objectives because it seeks to design a mechanism for risk management in production participation contracts. The research method is descriptive and field in terms of the data collection path.

Validity and Reliability

Qualitative Section Validity: Like all other types of research data analysis, the accuracy of the results of an interview content analysis depends on the quality of the research, which includes transferability, verifiability, reliability, etc.; and validity depends on the analytical type of findings; therefore, calculating the quality of the coding process, which includes categorizing or relating research units into categories, is important for conducting a successful analysis. A high level of quality in the qualitative section is at least what is needed for the coherence and accuracy of the interview content analysis. Any inconsistency in the coding of interviews is a potential source of error and reduced data quality

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Quantitative validity: To examine content validity quantitatively, two relative coefficients of content validity and content validity index are used. To determine the relative coefficient of content validity, experts are asked to examine each item based on a five-part spectrum of "completely essential", "essential" and "relatively essential", "unessential" and "completely unnecessary."

Reliability: In order to measure the reliability of the research questionnaire, the internal consistency reliability, Cronbach's alpha method will be used for the initial 25 questionnaires as a pre-test.

Research findings

Qualitative analysis findings

Sample size adequacy test: In the case of sample size, it is also generally used in structural equations of large amounts of data.

Table 1. Measuring sample adequacy

Statistics		Test
0.873	Sample adequacy measurement	Kaiser-Meier-Olkin (KMO)
12143.4532	Chi-square approximation	Bartlett sphericity test
24	Degrees of freedom	
0.000	Significance	

Since the value of the KMO index is 0.873 and the number of samples is sufficient for analysis. Also, the significance value of the Bartlett test is smaller than 0.05, which indicates that the desired analysis is suitable for identifying the model structure.

Delphi findings: The Delphi technique was implemented in three stages, and in each stage, a number of indicators were eliminated based on the average Kendall coefficient and the experts' opinion in the model, and the next stage was repeated again by eliminating weak indicators. Finally, three stages of the Delphi technique were performed,

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and in the third stage, the results show that we reached collective agreement and are the final indicators. At this stage, no new indicators were added to the model and the conditions of collective agreement show that we reached theoretical saturation and collective agreement, so the Delphi process was stopped.

Table 2. Results of the third round of Delphi

Proportion coefficient			Components of each dimension	Dimensions
Result	Agreement coefficient	Average		
Approved	87 .0	47 .6	Environmental assessment	Fuss Major
Approved	88 .0	49 .7	Performance guarantees	
Approved	84 .0	35 .6	Dispute resolution authority	
Approved	84 .0	40 .7	Contractual adjustment	
Approved	73 .0	17 .7	Foresight	
Approved	74 .0	21 .6	Initiative action	
Approved	7 .0	8	Consultation	
Approved	71 .0	11 .6	Supply and demand	Commercial Economic
Approved	7 .0	8	Production rate	
Approved	08	3 .7	Flexibility	
Approved	73 .0	21 .7	Amount regulation	
Approved	84 .0	39 .8	Control and supervision	
Approved	71 .0	04 .6	Audit	
Approved	84 .0	4 .7	Return on investment	
Approved	73 .0	18 .6	Transparency	
Approved	7 .0	6	Government competence	Political
Approved	81 .0	3 .6	Property competence	
Approved	82 .0	32 .6	Government investment	
Approved	72 .0	13 .7	Stability	
Approved	73 .0	17 .7	Adherence to governing laws and	
Approved	9 .0	7	Commitments	
Approved	88 .0	54 .5	Referral to arbitration	
Approved	89 .0	59 .5	Environmental uncertainty	Technical
Approved	71 .0	11 .5	Contract management	
Approved	7 .0	7	Risk classification	
Approved	73 .0	17 .5	Contract life cycle	
Approved	74 .0	21 .6	Evaluation of bidders	
Approved	83 .0	34 .6	Previous experiences	
Approved	8 .0	3 .7	Planning	
Approved	74 .0	21 .8	Delay management	
Approved	87 .0	43 .8	Technical specifications	
Result	84 .0	35 .7	Contract time	
Approved	86 .0	4 .7	Contractual Documents	

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Approved	71 .0	12 .8	Global Market Structure	International conditions
Approved	84 .0	40 .7	Dynamics of Oil and Gas Reservoirs	
Approved	87 .0	47 .6	Sanctions	
Approved	88 .0	49 .7	International Relations	
Approved	98.0	56.99	Transparency of Laws	Legal
Approved	44.0	43.55	Dispute Resolution	
Approved	34.0	23.45	University of Governing Law	
Approved	77.0	21.89	Unity of Legal Procedure	

Findings of the quantitative section

Fuzzy mapping method

In this stage of the research, the identified factors are modeled by fuzzy perceptual mapping. After determining the effective factors in the previous stages, the research experts identify and weight the causal relationships between the factors in each risk management area. The degree of influence of the factors on each other in the form of fuzzy linguistic variables {very low, low, medium, high and very high} is entered into the fuzzy system with the help of fuzzy triangular numbers and converted into definite numbers in the range of -1 and 1 with the help of the defuzzification method. The closer the obtained number is to -1 or 1, it means that the two factors have a greater influence on each other. The closer the number is to zero, it indicates a weak influence of the factors on each other. In Figure 1. The membership functions of the linguistic variables and in Table 3. The linguistic variables used are shown

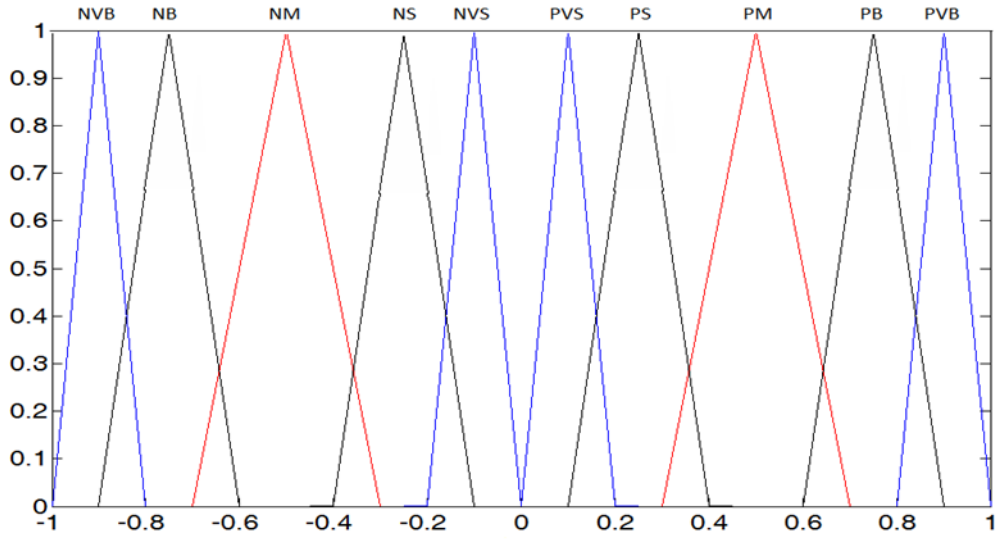

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Figure 1. Membership functions of linguistic variables

Table 3. Linguistic variables used in the fuzzification process

Fuzzy number	Linguistic variable
(0.8,0.9,1)	Very positive (PVB)
(0.6,0.75,0.9)	Very positive (PB)
(0.3,0.5,0.7)	Moderate positive (PM)
(0.1,0.25,0.4)	Low positive (PS)
(0,0.1,0.2)	Very low positive (PVS)
(-0.2,-0.1,0)	Very low negative (NVS)
(-0.4,-0.25,-0.1)	Low negative (NS)
(-0.7,-0.5,-0.3)	Moderate negative (NM)
(-0.9,-0.75,-0.6)	High negative (NB)

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(-1,-0.9,-0.8)	Very high negative (NVB)

In this study, the maximum mean method was used for defuzzification. In this way, the mean was taken from the center of the fuzzy numbers obtained from the experts' opinions.

In Figure 2, the initial fuzzy perceptual map is shown.

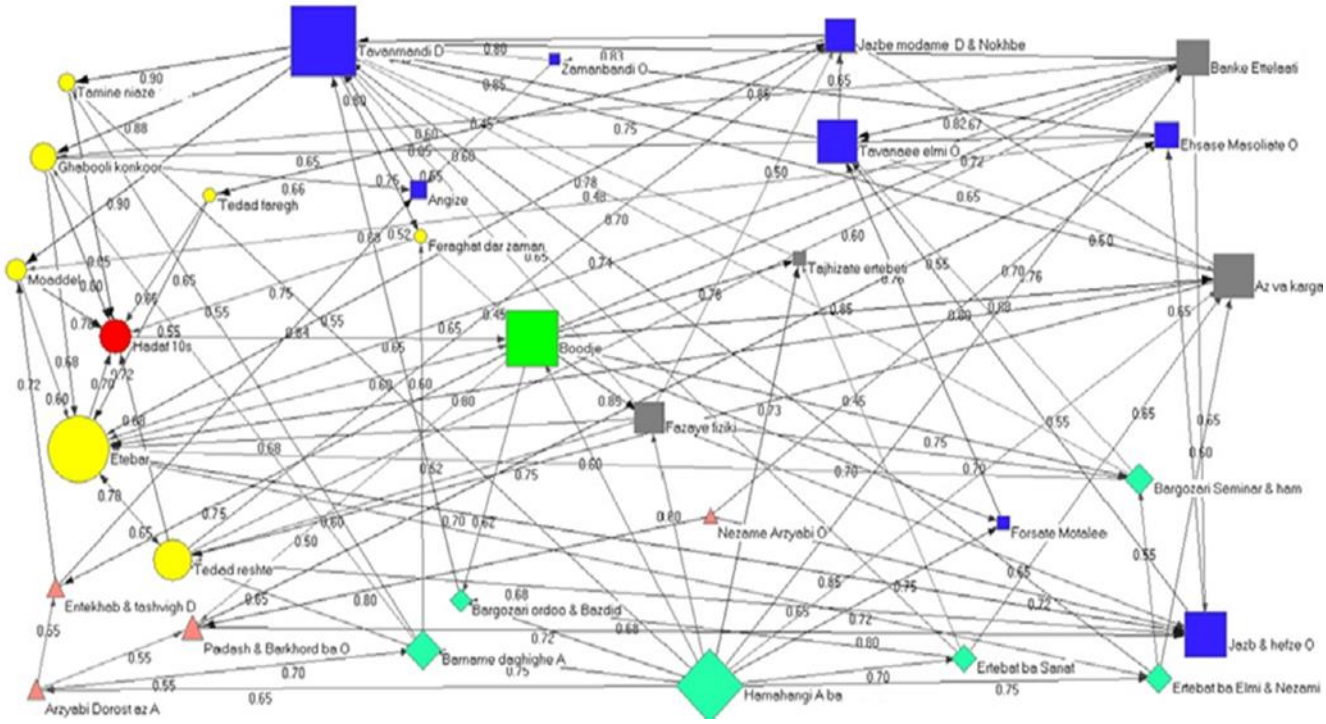

Figure 2. Fuzzy perceptual mapping with expert opinion

Table 4 shows the input, output, and centrality. Centrality is the sum of the input and output weights of concepts. In this table, numbers are assigned to each concept, and the amount of input, output, and their sum are calculated.

Table 4. Input, output, and input-output degree (centrality)

Concepts	Outdegree	Indegree	Centrality
Environmental assessment	0.60	4.64	5.24
Performance guarantees	1.98	2.96	4.95
Dispute resolution authority	1.79	1.98	3.77
Contractual modification	0.78	2.07	2.85
Foresight	0.94	1.25	2.19
Initiative action	1.27	0.79	2.06
Consultation	3.15	3.10	6.25
Supply and demand	6.06	2.16	8.22
Production rate	3.42	1.34	4.77
Flexibility	3.35	3.01	6.36
Amount regulation	0.42	1.82	2.24
Control and supervision	3.24	1.93	5.18
Audit	3.10	7.45	10.55
Return on capital	0.74	1.95	2.69
Transparency	2.48	4.01	6.49
Government competence	0.70	1.34	2.05
Ownership competence	0.98	0.79	1.77
Government investment	1.97	2.04	4.01
Stability	2.04	3.07	5.11

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Adherence to governing laws and regulations	2.63	4.05	6.67
Commitments	2.26	0.65	2.91
Referral to arbitration	1.80	1.30	3.10
Environmental uncertainty	7.72	0.00	7.72
Contract management	2.81	1.35	4.16
Risk classification	0.63	1.88	2.51
Contract life cycle	1.45	1.86	3.31
Evaluation of bidders	1.53	1.72	3.25
Previous experiences	1.44	1.21	2.65
Planning	2.06	0.00	2.06
Delay management	1.68	1.13	2.81
Technical specifications	3.92	6.13	10.05
Contract time	1.97	2.04	4.01
Contractual documents	2.04	3.07	5.11
Global market structure	2.63	4.05	6.67
Dynamics of oil and gas reservoirs	2.26	0.65	2.91
Sanctions	1.80	1.30	3.10
International Relations	7.72	0.00	7.72
Transparency of Laws	2.81	1.35	4.16
Dispute Resolution	0.63	1.88	2.51
University of Governing Law	1.45	1.86	3.31
Unity of Legal Procedure	1.53	1.72	3.25

According to Table (4-14), among the input concepts indicated by the square symbol, "contract time", "sanctions", "transparency", "global market structure", "contractual documents", "international relations", "dispute resolution" and "unity of legal procedure" are respectively central factors. Among the factors of the contract management and planning group, "referral to arbitration" and in the monitoring and evaluation group, "referral to arbitration" are central factors.

In Table 4. The output degree of a factor means the degree of influence on other factors, and the factors with a higher output degree are the more influential factors.

Table 5. 12 critical factors of contract risk management with the factor centrality approach

Factor centrality	Critical factors	Agent number and rank
10.55	Government competence	1
10.05	Ownership competence	2
8.22	Government investment	3
7.72	Stability	4
6.67	Adherence to governing laws and regulations	5
6.49	Commitments	6
6.36	Referral to arbitration	7
6.25	Environmental uncertainty	8
5.18	Contract management	9
5.11	Risk classification	10
4.95	Contract life cycle	11
4.77	Evaluation of bidders	12

To determine the critical paths and ultimately the critical success factors, Mamdani fuzzy operator is used. The first step is to determine the belief degrees of each path and the second step is to determine the highest belief degree among the paths. For example, the belief degree of path 1 is determined below.

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I1 : Path confidence level min{0.79, 0.75, 0.78, 0.79}= 0.75
Table 6. Key and important paths to achieving the ultimate goals of contract risk management and its degree of belief are shown.

Table 6. Important paths to achieving the ultimate goals

Important paths to achieving education goals	Path confidence level
I_1:{ C28-C14- C13- C4-C1}	0.75
I_2:{ C28-C14- C13- C2-C1}	0.75
I_3:{ C19- C13- C4-C1}	0.75
I_4:{ C19- C13- C2-C1}	0.75
I_5:{ C12- C13- C4-C1}	0.77
I_6:{ C12- C13- C2-C1}	0.75
I_7:{ C12- C15- C13- C4-C1}	0.77
I_8:{ C12- C15- C13- C2-C1}	0.75
I_9:{ C29- C27- C20- C15-C13- C4-C1}	0.75
I_{10}:{ C29- C27- C20- C15-C13- C2-C1}	0.75
I_{11}:{ C8- C10- C31- C20- C15- C13-C4-C1}	0.75
I_{12}:{ C8- C10- C31- C20- C15- C13-C2-C1}	0.75

Then, the highest degree of belief among the degrees of belief of the paths was determined. Therefore, the key paths are:

{I5 and I7}, where the degree of belief of each path is 0.77. After determining the key paths, the factors (concepts) that are in these paths are considered as critical success factors. These factors are: {C13-C15-C4- C12}

That is, the jurisdiction of the government, the ownership jurisdiction, and the government investment are the critical success factors in the key paths.

Now, if we ignore the difference in the degrees of belief of the 10 important paths in Table 6 with the two key paths above (which is 0.02) and consider all 12 paths as key paths and we want to arrange the factors according to the number of times the factor is in the key path, the critical success factors for risk management of oil and gas contracts are, respectively:
" -1Stability, attention to governing laws and regulations, and obligations" 12 times.
" -2Referring to arbitration, environmental uncertainty and contract management" 6 times each.
" -3Risk classification, contract life cycle and assessment of competitors" 4 times each.

Discussion and Conclusion
The aim of the present study was to conduct a comparative study and present a risk management and assessment model in the preparation of international contracts for participation in oil and gas production, in which 41 sub-factors were identified along with 6 sub-factors, and finally the importance of each was determined using the fuzzy mapping method. Considering the wide range of risks that the parties to the contract face in oil and gas projects, risk management strategies play a fundamental role in reducing the costs arising from risks, reducing disputes between the parties to the contract, and ultimately achieving the commercial objectives of the contract. Contractual allocation of project risks through the inclusion of key risk distribution terms in the contract, as one of the most important risk management tools, has been significantly considered in oil and gas contracts in recent years, so that the successful implementation of any project depends on the design of an efficient contract that leads to an optimal and fair distribution of project risks by transferring the responsibility for managing and bearing risks to the party that is in the best position to manage them.

Sometimes, in some parts of a contract, multiple concepts and meanings can be understood. In these cases, the intention of the parties when concluding the contract cannot be understood. The language of the contract provides a basis for ambiguity. The choice of words and phrases in the contract is very important in this regard. Perhaps the most important task of the definitions section in contracts is to remove these ambiguities. The definition of commercial production, the effective date of the contract, the transfer of technology, and the like helps to eliminate

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many ambiguities in contracts and prevent conflicts between the parties. The California court divides ambiguity into two categories: obvious, which is observed on the surface of the contract, and hidden ambiguity, which is based on external evidence. In any type of contractual ambiguity, the parties do not pay much attention to the gaps in the contract until a disagreement arises. Ambiguity may be in meaning, in grammar, or in the concept of the phrase. According to commentators, grammatical ambiguity is usually the most common type of ambiguity in legal texts (Torbert, 2014, p. 9). Ambiguity may be intentional or unintentional, of course, it is very difficult to determine whether ambiguity is intentional or unintentional.

Evidence of ambiguity can always be found in contracts. One of the cases that always exists in contracts is the use of the word "maximum" such as maximum domestic capacity, maximum effort, and the like, which are usually left ambiguous in the contract. For example, the clause on the use of domestic companies and equipment in counter-sale contracts states "The contractor must use the services of Iranian companies to achieve maximum use of Iranian capacity in the project, with due regard to Iranian law." In order for the contract not to be incomplete in this respect, the amount of use of Iranian capacity in the contract for phases 2 and 3 has been set at 30 percent. A review of the contract's performance shows that the use of domestic capacity in this contract has become 32 percent (Kashani, 2009). Therefore, the contract is not incomplete in this respect, and the structure of the counter-sale contract administration is such that a certain percentage of the use of domestic share can be included in it and its result can be hoped for.

The local employment and training clause of the counter-purchase agreement states, “The contractor shall give priority to Iranian citizens in employment and personnel in charge of development operations, and the employment of foreigners shall be limited to cases where Iranian nationals are not available.” This clause is ambiguous. What is the priority or precedence, and what happens in situations where the wages or prices of domestic personnel are higher or their quality is lower? If the national company accepts the responsibility of domestic companies, the contractor opens the way for opportunism. If it does not accept the responsibility, it must impose it on the contractor. The contractor accepts this procedure to obtain permission to extend the time, and the employer accepts it for its own considerations.

It is difficult to find contractual ambiguities that arose during the execution of the contract due to the confidentiality of the contract and the lack of access to the parties' disputes. Here we will mention an example of ambiguity in the laws related to the contract. As mentioned earlier, according to the Second Five-Year Development Plan Law, "Within the framework of counter-sale contracts, the value of raw materials, intermediate goods, machinery and services required to be imported through the export of manufactured goods mentioned in each contract should be settled (Note 22, paragraph f)" and in the 1976 Budget Law, it is stated based on the first paragraph of Note 29 of the 1997 Budget Law: "The government is allowed 1- In relation to the obligation to reimburse the costs related to the 12 counter-sale plans of the National Iranian Oil Company referred to in paragraph m) of Note 22 of the Law on the Second Economic, Social and Cultural Development of the Islamic Republic of Iran, the National Iranian Oil Company is allowed to undertake the obligation to reimburse the above plans from the income derived from the export of their manufactured goods, based on the approved budget.

Practical suggestions

1- Maintaining the government’s sovereignty and ownership over oil and gas resources
2- Anticipating ways to compensate for the negative effects and consequences of the National Iranian Oil Company’s compliance with the law on maximum use of the country’s production and service capacity.
3- Explaining and applying support and incentive mechanisms (for example, paying appropriate bonuses to the contractor) in the event of an increase in the use of domestic capacity on the one hand, and on the other hand, explaining and applying reprimand and punishment mechanisms in the event of a decrease in the use of domestic capacity.
4- Adhering to quantitative, qualitative, and competitive principles in the use of the country’s domestic capabilities and facilities.
5- Determining the ceiling for the contract’s capital costs by holding a tender within a certain period according to the contract after the date of entry into force or effectiveness of the contract and conducting front-end engineering and design (FEED) studies and holding tenders under the supervision of the employer and his final approval.
6- Anticipating the principles and procedures of operation accepted (desirable) in the international oil and gas industries in the form of an independent appendix attached to service contracts.

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7- Forecasting two different levels of return on investment under the initial return on investment rate specified in the contract and the maximum return on investment rate in the contract. Explain that in service contracts (third generation cross-selling contracts), two different levels of return on investment are forecasted under the first contractual ceiling of the return on investment rate and the second contractual ceiling of the return on investment rate in each phase of field development. Now, if it is decided that other phases of field development will also be carried out by the same contractor, it is natural that the said initial and secondary rates will be renegotiated by the parties to the contract.

8- -The duty of the Ministry of Oil or the National Iranian Oil Company to adopt correct plans for the protection and conservation of resources and the prevention of environmental pollution.

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