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Research Article

Evaluating the Effectiveness of the Corporate Governance System in Iran Using Fuzzy Qualitative Comparative Analysis

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ABSTRACT

In recent years, the concept of corporate governance has garnered significant attention from researchers and practitioners alike. Corporate governance encompasses the processes, mechanisms, and communications through which a company is directed and controlled. This study aims to assess the effectiveness of Iran's corporate governance system employing the fuzzy qualitative comparative analysis (fsQCA) technique. The research is applied in nature and utilizes a quantitative approach, primarily through a structured questionnaire for data collection. The target population includes financial experts, managers, accountants from stock exchange holding companies, academics, authors of corporate governance reports, independent auditors, and users of these reports. A sample of 132 participants was selected based on the Morgan table, using simple random sampling methods. The defined factors were analyzed through fsQCA, which reveals various combinations that each company can consider to identify suitable solutions for enhancing its performance based on available financial and human resources. Unlike traditional statistical methods, fuzzy solutions provide diverse configurations for evaluating the effectiveness of corporate governance systems, contributing valuable insights to the existing body of knowledge.

Keywords: Evaluation, Corporate Governance, Fuzzy Qualitative Comparative Analysis (fsQCA).

1. Introduction

Evaluating the effectiveness of policies is one of the most important issues facing policymakers in various fields. Evidence-based policymaking is now an accepted practice in many areas of economic, financial, and social policymaking. Similarly, the question of whether corporate governance bodies should consider the economic impacts and consequences of their policies has been a subject of debate for decades. Increasing the transparency, accountability, and credibility of the corporate governance body has been the most important arguments in favor of the necessity of analyzing the economic impacts and consequences by the policy-making body. In this regard, leading international institutions in the field of corporate governance policy development have concluded over the past decade that even taking steps such as publishing a draft corporate governance policy is not enough to ensure its quality, and that post-implementation evaluation of the policy should be conducted within a coherent and comprehensive framework to ensure the effectiveness of the policy. In other words, another step has been added to the process of developing guidelines, and one of the most important challenges for the developers in the future will be whether post-implementation evaluations produce timely feedback. It should be acknowledged that in the current situation, the pressures resulting from economic sanctions, economic globalization, the coronavirus pandemic and the problems arising from it, the positive and negative effects and results that each of them brings, are all issues that confront business environments with serious and new challenges. These challenges, in turn, require the need to examine the effectiveness of the corporate governance system in line with these conditions.

The results of this article will lead to understanding the effectiveness of the corporate governance system for managers and board members of listed companies in Iran and the Stock Exchange Organization, and will help explain

the effectiveness of the corporate governance system in order to move towards increasing this effectiveness. Also, this article tries to expand the boundaries of knowledge in this area through this path.

2.1 Corporate Governance Models

Currently, in the discussion of economics and management on the topic of corporate governance, there are two different models of companies: the shareholder model and the stakeholder model (Maher and Anderson, 2022). The shareholder model aims to maximize shareholder value and ensure that the company is run in the best interests of shareholders. This model helps provide clear guidance in setting priorities and establishing monitoring and control mechanisms to improve the profitability of the company. The shareholder approach to corporate governance is primarily concerned with aligning the interests of managers and shareholders (controlling shareholders and minority shareholders) to reduce agency problems (Han, 2022). On the other hand, the stakeholder model extends the shareholder model to consider other stakeholders, including employees, suppliers, customers, creditors, and social components such as the local community, environmental agencies, local and national governments. One of the challenges associated with this model of companies is that it is difficult to ensure that all stakeholders' interests are included. To protect the interests of all stakeholders and create value for the company, there is a need for a mechanism to encourage cooperation and coordination among them; this should be considered considering the different legal systems and institutional context of a particular country (La Rosa et al., 2019). Corporate governance factors such as board of directors, ownership structures, value, key manager functions, forms of control, sources of financing, governance approach, company objectives, and strategies differ (Filatuchev, 2018) under these two models as shown in Table 1.

Table 1: Corporate Governance Models

Corporate governance models		
Stakeholder Model	Shareholder Model	Model
Centralized	Spread	Ownership
State (Supervisory Board and Executive Board)	Single-layer (Board of Directors)	Board Structure
Stakeholder Value	Shareholder Value	Value to be Achieved
Maintained System	Profit Generation	Main Duties of the Manager
Applied by Company Stakeholders (Direct)	Implemented by Stock Exchange (Indirectly)	Form of Control
Reinvestment of Profits and Bank Credits	Mainly Stock Market	Sources of Financing
Coordination and Cooperation	Monitoring and Control	Governance Approach
More Diversified Objectives	Shareholder Value Creation	Company Objectives
Increasing Facilities for Innovation and Quality Competition	Encourages Radical Innovation and Cost Competition	Company Strategy
Civil Rights	Common Rights	Legal Systems
Continental European Countries (Germany, Netherlands, Sweden, Austria, Denmark, Norway, Finland, France, Italy, Spain, Belgium) and Japan, Latin America	United States, United Kingdom, Canada, Australia (British Territories or Colonies)	Countries

However, the major invisible obstacle in modern corporations under these two models worldwide is the lack of transparency (Ndofor et al., 2015). Although many efforts have been made in common law and civil law jurisdictions to promote the principle of transparency in corporate governance, information asymmetry still exists due to different organizational contexts and different methods of recording transactions using different ledgers between peers. This process creates duplication and inconsistencies and delays in processes that create opportunities for managers to

manipulate transactions. Based on corporate and government information flows, Erichti and Rouhani (2018) have proposed an ideal corporate governance model to assess the merits of the Digital Accountability and Transparency Act of 2014 (Data Act). Their study suggests that "increased data timeliness and usability enhance transparency, while improvements in automation, data transfer, and data analytics improve oversight." Transparency enables principles to reduce undesirable agent behavior and determine the most productive principal-agent relationships.

2. Research Background

Victor Fedasio, Lev Lofsky (2025) examine personal financial incentives, corporate governance, and corporate campaign contributions. Corporate governance and personal financial incentives of CEOs are important determinants of a company's ability to reap the benefits of political participation. Companies with more independent boards of directors are more likely to establish corporate political action committees (PACs), and CEOs in these companies are more sensitive to campaign contributions to their personal equity. Furthermore, they show that dispersed ownership limits the ability of corporate political action committees to raise capital, because even large firm-level benefits from political participation may be negligible for individuals with small stakes. This could explain why the total participation of corporate political action committees remains relatively small compared to the valuable benefits that such participation can generate for the firm. However, the negative effect of dispersed ownership on political contributions is mitigated by corporate governance, as well-governed firms can better align their managers' incentives with the benefits of corporate political participation.

Orazalin et al. (2025) Corporate governance, governance quality, and biodiversity reporting review global evidence. The paper examines the effects of corporate governance and governance quality on corporate biodiversity reporting to answer the question of whether governance quality moderates the relationship between corporate governance and biodiversity reporting practices. Using a sample of global companies in 36 countries over the period 2009–2020, they find that the overall quality of corporate governance and individual governance dimensions, such as management effectiveness, corporate social responsibility (CSR) practices, and stakeholder treatment, are positively associated with biodiversity reporting. The results suggest that companies operating in countries with strong national governance systems tend to disclose extensive information on biodiversity. They also find that the quality of national governance positively moderates the relationships of CSR practices and shareholder treatment with biodiversity reporting practices, but has no effect on the link between management effectiveness and biodiversity reporting. Their findings have several implications for regulators, policymakers, and organizational stakeholders. Overall, the results support the dynamic capabilities perspective, as internal and external governance mechanisms and systems can motivate boards and management teams to develop dynamic capabilities, engage in sustainability practices, and increase biodiversity transparency.

Zhou et al. (2025) investigated the impact of corporate governance level on total factor productivity of a company from the perspective of supply chain digitalization. The study uses Chinese listed companies from 2013 to 2022 as research samples and investigates the impact of corporate governance level on total factor productivity of a company from the perspective of supply chain digitalization. The findings show that supply chain digitalization can increase total factor productivity of a company. The level of corporate governance is positively correlated with total factor productivity of a company. The impact of supply chain digitalization on total factor productivity is different between state-owned and non-state-owned enterprises, and has a more obvious impact on state-owned enterprises. R&D investment plays a mediating role between corporate governance level and total factor productivity of a company.

Wei Li et al. (2024) presented Environmental, Social and Governance Performance, Financing Constraints, and Corporate Investment Efficiency: Empirical Evidence from China. The study examines the relationship between environmental, social and governance (ESG) performance, financing constraints, and corporate investment efficiency. The hypotheses are formulated based on the principles of stakeholder and agency theories. They used secondary data of Chinese A-share companies from 2010 to 2021 to conduct an empirical analysis using ordinary least squares (OLS) and fixed effect (FE) estimators. The results show that good ESG performance can enhance corporate investment efficiency. Compared with overinvestment, ESG performance has a more significant effect on reducing underinvestment. Using a mediation analysis model, they also found that ESG performance has a deterrent effect on over-investment by reducing corporate financing constraints. Heterogeneity analysis shows that the incremental effect of ESG performance on corporate investment efficiency is more significant in non-governmental companies, low-pollution companies, and companies with a higher proportion of institutional investors. The study

provides insights for listed companies to improve ESG performance to increase capital allocation efficiency and promote sustainable development.

Sahri et al. (1402) examined the characteristics of corporate governance, strategic management accounting, and management accounting. In this regard, they designed a model of corporate governance characteristics with an interactive approach of strategic management accounting and management accounting using confirmatory factor analysis and structural equation modeling. The results showed that management accounting components have a significant effect on strategic management accounting components and corporate governance characteristics. The results also showed that the components of strategic management accounting have a significant effect on the characteristics of corporate governance. Moradi and Jodeki (2014) examined the effect of organizational culture, corporate governance, and audit quality on auditor performance. The culture of any organization is one of the major factors affecting its performance. The impact of organizational culture on organizational members is to such an extent that it can be understood by examining its angles regarding the behavior, feelings, views, and attitudes of organization members. The purpose of the research is to examine the effect of organizational culture, corporate governance, and audit quality on auditor performance. The statistical population is all members of the Iranian Certified Public Accountants Association, and the results of the research show that organizational culture, corporate governance, and audit quality have an impact on auditor performance.

Norouzi Asl Balkanloo et al. (1402) examined the moderating effect of corporate governance on the relationship between independent audit quality and tax gap in companies listed on the stock exchange and over-the-counter. The aim of the study is to examine the moderating effect of corporate governance on the relationship between independent audit quality and tax gap in companies listed on the stock exchange and over-the-counter. The multivariate regression method based on mixed data was used to analyze the information. The research sample included 1230 observations of company-years for the years 2008 to 2017. They were analyzed using Excel and IViews software. The research findings indicate that there is a negative and significant relationship between independent audit quality and tax gap, but the moderating effect of corporate governance on the relationship between independent audit quality and tax gap is positive and significant. The Tax Affairs Organization should pay more attention to the issue of tenure and continuity of the relationship between audit firms and companies in order to correctly determine taxes. Also, companies can use expert auditors working in the audit firm and A-rated institutions to validate and increase the quality of reported profits, in order to gain the trust of investors. According to the result of the second hypothesis, corporate governance is not properly observed in Iran, and it is better to improve corporate governance standards as a monitoring tool. In Figure 1, which was drawn with the VOS viewer software; the countries whose academic centers have studies in the field of corporate governance have been identified, with China, England, and Australia having the largest share among the countries, and Iran's place among these countries is empty.

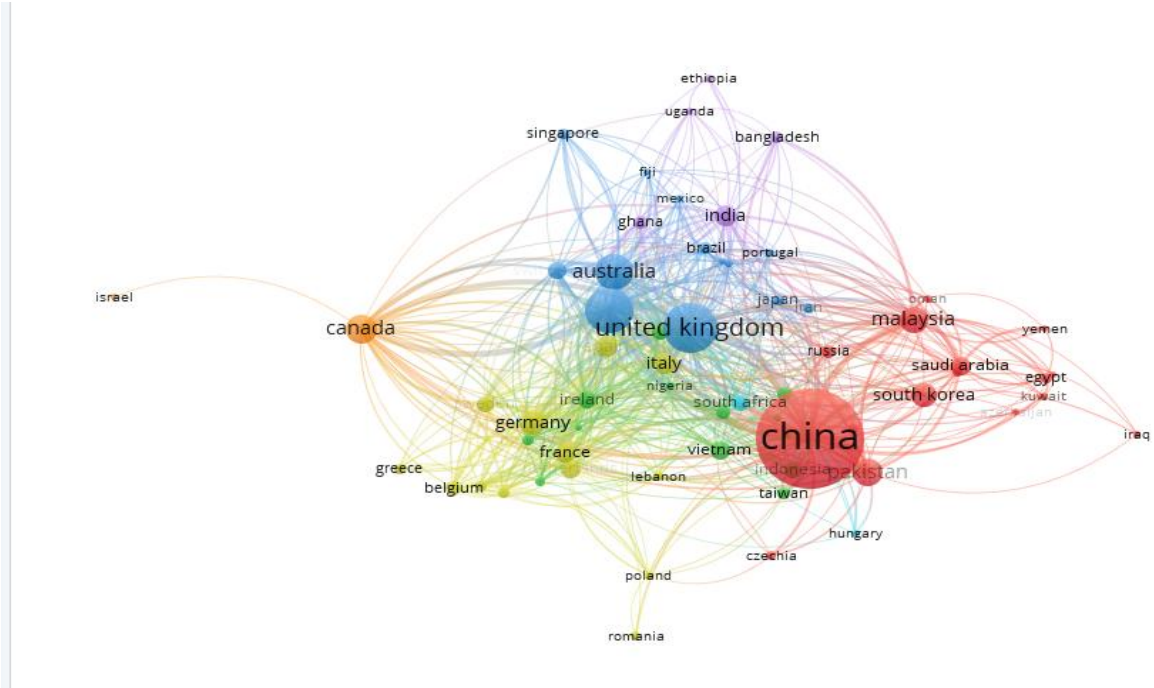

Chart 1: Countries that focus on corporate governance studies

3. Research methodology

This research was a descriptive correlational type that was conducted by survey method. Also, in this research, considering the purpose and nature of the research, quantitative research method was used. The statistical population is financial experts, managers and accountants of stock exchange holding companies, academics, preparers of corporate governance reports, independent auditors and users of these reports. 132 people were selected by random sampling method and using Cochran table with an error level of 5%. The research constructs include dimensions of corporate governance that were obtained based on the analysis of the foundation data, including causal conditions: compliance with relevant legal and ethical standards, stakeholders, analysis of ambiguities, mechanisms, continuous monitoring; intervention factors: existing systems at the corporate governance level, organizational structure, new tools, situation-oriented; Context: Shortcomings, extensions, policies, training, granting sufficient power to the board of directors; Core categories include fintech, environmental complexity, hybrid assurance, culture pillar, agency theory, supervisory role; Effects of the corporate governance model: system creation, cost management, problem-based model, performance, indigenous framework, report quality; Effects and consequences of implementing the corporate governance model: increasing transparency, government expectations, accountability, improving internal controls, creating capacity for creativity, optimizing resources were collected using a researcher-made questionnaire based on the Likert scale. In the present study, face validity (confirmation of the quantity and quality of questions from experts and professors related to the research field) was used to determine validity. Content validity is used to assess the degree of coordination between the content of the measurement tool and the research objective from the experts' point of view. For this purpose, two qualitative and quantitative methods are considered. A pre-test stage was conducted to measure the reliability of the questionnaire. Thus, first 30 questionnaires were distributed and collected in the target population and after entering the data, the reliability coefficient (Cronbach's alpha) was calculated using SPSS software and the overall reliability value was 0.91, which is acceptable reliability according to Rosner's theory (1995).

To examine which of the analyzed factors affects which configuration in evaluating the effectiveness of the corporate governance system in Iran, we use the fsQCA method. The foundations of this method were created by Ragin (1987). This method belongs to the group of configuration comparative methods and was created as an alternative to the existing classical methods based on regression analysis. Compared to the traditional QCA method, the modified fsQCA enables us to use continuous variable types or interval scales. These variables must be calibrated before being converted into categories or fuzzy variables. Schneider and Wagman (2012) also made a significant contribution to the development of this method. The fsQCA method belongs to data analysis techniques that aim to determine logical

conclusions from a data set and allow the study of complex causal relationships. Many studies have explained the significant advantage of this method over classical regression analysis methods (e.g., Feis, 2011; Schneider and Wagman, 2012). Its advantages can be listed as follows (Ragin, 2008):

_ Asymmetric relationships (including the interrelationships of dependent and independent variables);

_ Equivalence (the principle that the same results can be achieved regardless of the sources or paths used).

_ Causal complexity (the combination of causes and determinants leading to the result).

Technically, we can distinguish three basic operational steps in QCA analysis that allow the selection of appropriate conditions and combinations of variables. These are as follows:

a) Calibration (data transformation)

b) Construction of the truth table

c) Logical minimization

This method in this study answers two research questions, which are:

Question 1: How is the effectiveness of the corporate governance system in Iran evaluated by analyzing the necessary conditions of fsQCA?

Question 2: How is the effectiveness of the corporate governance system in Iran evaluated by analyzing the sufficient conditions of fsQCA?

4. Research findings

a) Calibration (data transformation)

In order to respond to the final goal of this research, namely determining the degree of model fit from the experts' perspective, a model called fsqca was used. In the first stage of fsqca analysis, all variables are transformed into sets. Sets indicate the extent to which a given variable belongs to a specific category. Sets can have any value from 0 to 1 (Woodside and Zhang, 2013). Variables in a set can be calibrated explicitly (i.e., the variability of belonging to a category is determined in binary terms: “0” for non-membership and “1” for membership). Fuzzy set analyses typically use three threshold values for calibration: 0.05 as the threshold for non-membership, 0.5 as the cutoff point for maximum ambiguity, and 0.95 as the threshold for full membership in the set (Ragin, 2000; 2008). It is best for the researcher to determine the method for assigning fuzzy values to membership cases and adopting threshold values, although this method should be clear for validation and replication by others (Ragin, 2000). In the present analysis, the calibration method was performed using the direct method (Ragin, 2008). Given the considerations, the cutoff points were chosen based on percentiles (Binnon, Jones, & Pickernall, 2016; Deol, 2016). Specifically, the 95th percentile was used as the threshold for full membership, the 50th percentile as the cutoff point for maximum ambiguity, and the 5th percentile as the threshold for non-membership in our study.

b) Construction of a truth table

The main purpose of creating a truth table is to show which combination of conditions in the analyzed cases helps us to achieve the expected result. The truth table has a number of rows equal to n2, where n is the number of conditions assumed in the analysis. The entire table presents all possible combinations of conditions and results (Ragin, 2008). However, the number of cases belonging to different combinations may vary (Feis, 2011). In our study, the number of all possible combinations was 78. A truth table for the analyzed cases and conditions was created using the fsQCA 3. 0 software (Table 2). Only those combinations that were reflected in at least one of the cases were included. As can be seen from the 78 combinations, 31 are reflected in at least one of the cases analyzed. In the next step, the number of rows in the truth table must be reduced to identify the appropriate causal combinations leading to the outcome. The reduction criterion is based on two quantities. The first is the minimum number of cases that we consider necessary to consider the appropriate combination. This minimum number of cases is usually related to the total number of cases that we analyze. In our study, combinations that led to success in at least one case were considered due to the relatively small number of cases. The second factor for deciding whether to remove combinations from the

truth table is a quantity known as consistency. Consistency means the extent to which a combination of causal conditions is reliably associated with the outcome (Criley, 2011). The level of consistency ranges from 0 to 1 (where a value of 1 indicates total consistency). At this stage, it is assumed that the compounds whose compatibility is less than 0.8 are represented in the fsQCA analysis (Schneider and Wagenmann, 2012). After removing the compounds that do not meet the above conditions from the truth table (Table 2), the third stage of the analysis can be started.

Table 2: Truth Table

casual	intervening	observes	contextual	strategist	consequence	number	goverar
0	0	0	0	0	0	68 (51%)	
0	0	0	1	0	0	12 (60%)	
0	1	0	0	0	0	8 (66%)	
1	1	1	1	1	1	8 (72%)	
1	0	0	0	0	0	4 (75%)	
0	1	1	0	0	0	4 (78%)	
1	1	1	1	0	0	4 (81%)	
0	0	0	0	1	0	4 (84%)	
1	0	0	0	1	0	4 (87%)	
1	0	0	1	1	0	4 (90%)	
1	1	1	1	1	0	4 (93%)	
1	0	1	0	1	1	4 (97%)	
1	0	1	1	1	1	4 (100%)	
1	1	0	0	0	0	0 (100%)	
0	0	1	0	0	0	0 (100%)	
1	0	1	0	0	0	0 (100%)	
1	1	1	0	0	0	0 (100%)	

c) Logical minimization

As mentioned earlier, the fsQCA method uses Boolean algebra and algorithms that allow for the logical reduction of multiple random conditions. The result is a set of settings related to the outcome (effect) (Feis, 2011). The truth table construction algorithm generates several possible solutions. To analyze them, adversarial analysis is used (Ragin and Feis, 2008). According to this, the principal components and marginal connections between causes and effects can be identified (Ragin, 2008). Principal connections relate to underlying causes that have a strong causal relationship with the outcome (effect). Marginal connections are additional or interchangeable because they indicate a weaker causal relationship with the outcome (Feis, 2011).

1.4 Necessary Condition Analysis

Usually, before proceeding to the next step of fsQCA (i.e., constructing a truth table), one examines whether each of the causal conditions can be considered necessary. In fsQCA, the interpretation of the results is based on consistency. A consistency condition is required when the consistency value is greater than 0.9 (Schneider and Wegman, 2012). Table 3 shows the necessary relationships of the five research conditions.

Table 3: Necessary Condition Analysis

) Coverage(	**) Consistency(**	**Necessity Analysis**
0.77	1	**Causal variables**
0.000	0.000	**~ Causal variables**
0/84	0/94	**Intervenor**
0/15	0/57	**~ Intervenor**
0/92	0/91	**Axis**

0/70	0/28	**~ Axis**
0/75	0/91	**Contextual**
0/08	0/25	**~ Contextual**
0/87	1	**Strategies**
0.000	0.000	**~ Strategies**
1	0/97	**Effects and Results**
0/1	0/43	**~ Effects and Results**

2.4 Obtaining configurations/solutions Three solutions can be adopted in fsQCA: complex, intermediate and parsimonious (Riveux and Regin, 2009). Results are obtained from the fsQCA analysis regarding the consistency and coverage of the empirical data in the model. Sufficient consistency is the initial condition of the experiment. The consistency criterion can be viewed as a correlation coefficient (Woodside, 2013). A consistency threshold of 0.75–0.95 should be maintained (Rigneux, 2008). However, the data coverage index (which indicates the empirical significance of the solution) indicates to what extent the outcome (effect) is explained by the adopted solutions. If the coverage is 0.25–0.65, the model is considered sufficiently explanatory (Riveux and Regin, 2009). Using the fsQCA 3.0 program, as a result of rational minimization and simplification, we obtained three main solutions based on a simple solution (Table 4). Considering the intermediate solution, two of them may represent two slightly different paths to success (Ragin, 2008). By analyzing the fitting parameters (i.e., consistency and degree of coverage for the obtained solutions), it can be concluded that the assumptions made about their values are met in all cases. The consistency in all solutions and for the total number of solutions is greater than 0.75, while the degree of coverage also falls within the accepted range. FsQCA calculates three solutions, namely: the complex solution, the parsimonious solution, and the intermediate solution. A "solution" is a combination of configurations supported by a large number of cases, where the rule "combination leads to conclusion" is consistent. The set of parsimonious solutions is a simplified version of the complex solution based on simplifying assumptions and presenting the most important conditions that cannot be ignored in any solution (Table 4). These are called "core conditions" (Feis, 2011) and are automatically detected by fsQCA. The main difference between the parsimonious and complex solution is that the complex solution eliminates the counterfactual cases that involve limiting simplification, while the parsimonious solution includes any counterfactual combination that can contribute to a simpler logical solution.

Table 4: Complex solution of the FSQCA approach

Model: goverance = f(casual, intervening, observes, contextual, strategist, consequence) Algorithm: Quine-McCluskey			
Compatibility	Unique coverage	Raw coating	Variable
0/83	0/06	0/17	Pivotal * ~ Strategies
0/88	0/06	0/1	~Causal Variables*Pivotal*~ Effects and Outcomes
0/92	0/01	0/03	Causal Variables*Intervening* Contextual**~ Strategies* Effects and Outcomes
0/93	0/01	0/01	~Causal Variables*~Intervening* ~Pivotal* Effects and Outcomes
0/95	0/01	0/03	Causal variables*~ Intervening variables*~ Pivotal variables*~ Effects and outcomes* Strategies
0/92	0/05	0/03	~Interventionist*~Centered* ~Contextual* Strategies* Effects and Results
0/95	0/03	0/05	Causal variables* Intervening* Contextual*~ Strategies* Effects and outcomes
0/53			Solution convergence
0/82			Solution compatibility

The complex solution provides all possible combinations of conditions when traditional logical operations are applied (Table 5). In general, since the number of configurations identified can be very large, the number of complex solutions can be very large and may include configurations with several terms, which makes the interpretation of the solutions relatively difficult and in most cases impractical. For this reason, they are converted into simple and intermediate solution sets.

Table 5: Parsimonious solution of the FSQCA approach

Model: goverance = f(casual, intervening, observes, contextual, strategist, consequence) Algorithm: Quine-McCluskey			
Compatibility	Unique coverage	Raw coating	Variable
0/82	0/06	0/17	Causal Variables* ~ Strategies
0/88	0/02	0/03	~ Causal Variables* ~Contextual* ~ Strategies
0/88	0/06	0/01	~ Causal Variables*~ Pivotal* ~Strategies * ~Effects and Outcomes
0/90	0/01	0/01	~Causal Variables*~ Intervenor* ~Pivotal* Contextual
0/92	0	0/01	~Causal Variables*~Intervenors* ~Pivotal* Effects and Outcomes
0/91	0/01	0/03	Causal Variables*~Intervenors*~* ~Contextual Strategies* Effects and Outcomes
0/89			Solution Convergence
0/80			Solution Compatibility

Finally, the intermediate solution is obtained in the inverse condition analysis on the complex and parsimonious solutions that only theoretically include acceptable inverse conditions (Ragin, 2008) (Table 6). The intermediate solution uses a subset of parsimonious assumptions that must be consistent with theoretical and empirical knowledge. Based on prior knowledge, the researcher may decide whether to account for one of the variables only when present, only when absent, or both. By default, the account is either present or absent. Any decision made about the relationship between each causal condition and the outcome must be based on theoretical knowledge (Feis, 2011). The intermediate solution is part of the complex solution and includes the parsimonious solution. While the main conditions are present in both the parsimonious and intermediate solutions, the conditions that are omitted in the parsimonious solution and appear only in the intermediate solution are known as “environmental conditions” (Feis, 2011). In other words, since the intermediate solution presents both the main conditions and environmental conditions, and the environmental conditions are omitted from the parsimonious solution, an easy way to identify the main conditions is to examine the parsimonious solution because it does not include environmental conditions. Furthermore, the parsimonious solution is typically smaller than the intermediate solution. However, it is possible that they are exactly the same, meaning that no further explanation of the parsimonious solution is useful. By adding additional conditions to the solution, we actually increase the complexity. By comparing the intermediate and parsimonious solutions, it is observed that the intermediate solution does not have a higher consistency than the parsimonious solution.

Table 6: Intermediate solution of the FSQCA approach

Model: goverance = f(casual, intervening, observes, contextual, strategist, consequence) Algorithm: Quine-McCluskey			
Compatibility	Unique coverage	Raw coating	Variable
0/85	0/06	0/07	Causal Variables* Axial~Contextual * ~ Strategies
0/83	0/02	0/06	Interventionist* Axial * ~ Strategies * ~Effects and Outcomes

0/86	0/01	0/05	Causal Variables* Intervening* ~Pivotal* ~Strategies* ~Effects and Outcomes
0/92	0/01	0/03	Causal Variables* ~Pivotal* ~Contextual* Strategies* Effects and Outcomes
0/90	0/01	0/01	Causal Variables*~ Intervening* ~Pivotal* Effects and Outcomes
0/92	0/03	0/05	~Causal Variables*~Intervenors*~Contextual* Strategies* Effects and Outcomes
0/86	0/03	0/05	Causal Variables*~Intervenors *Axial* Strategies* Effects and Outcomes
0/85			Solution Convergence
0/82			Solution Compatibility

Typically, more than one main condition may exist at a time in a particular case. As an example, if we have a parsimonious solution of the form A + BC + BD and an intermediate solution of the form AcD + BCE + ABF + ABCDf, we report AcD + BCE + ABF + ABCDf and indicate the main conditions using boldface. However, the researcher may report only the parsimonious solution and focus only on the main conditions that cannot be eliminated from any solution. Next, to improve the presentation of the findings, we can convert the output solutions of FsQCA (Tables 4-12 to 4-14) into a readable table that is easy to read (Table 4-15). Typically, the presence of the main causal condition is indicated by a black circle, the presence of the main variables of the causal condition by a small black circle, the absence/negative by an empty circle, and the "indifferent" condition by a blank space (Feis, 2011). The negation of a condition as non-presence is also referred to in the literature as the so-called vanishing condition, and the two terms are used interchangeably (Pappas, 2021). The distinction between the main and the peripheral is made using large and small circles. The overall coverage describes the extent to which the outcome of interest is explained by the combinations and is comparable to the R-square reported in regression-based methods (Woodside, 2013). In this study, the results show that the overall coverage of the solution is 0.88, indicating that a significant proportion of the outcome is explained by the six solutions. Typically, before proceeding to the next step of fsQCA (i.e., constructing a truth table), it is checked whether each of the causal conditions can be considered necessary. In fsQCA analysis, the interpretation of the results is based on consistency and is presented using the Kane McCluskey algorithm. Table 7 also shows the analysis of sufficient conditions

Table 7: Analysis of sufficient conditions

6	5	4	3	2	1	
○	●	⊗	●	●	●	**Causal Variables**
●	•	⊗	○	○	•	**Contextual**
●	○	●	⊗	●	●	**Intervening**
⊗	⊗	○	⊗	●	⊗	**Axis**
●	⊗	●	●	●	●	**Strategies**
●	⊗	●	●	●	●	**Results**

●= main causal condition (present); • = presence of main variables of the causal condition;

○ absence of main variables of the causal condition;

⊗Blank spaces indicate the lack of significance of the condition. Cut-off point: 0.8; Expected direction vector (1,1,1,1,1) (Regin and Shen, 2016)

5. Discussion and Conclusion

In response to the first question, how is the evaluation of the effectiveness of the corporate governance system in Iran by analyzing the necessary conditions of fsQCA? In the analysis of the necessary conditions, consistency indicates the

extent to which a specific condition is related to the relevant results. Values close to 1 indicate a strong relationship. Based on the results obtained for the two variables of causal conditions and strategies, this value was obtained equal to 1, indicating a strong impact of these conditions on the evaluation of the effectiveness of the corporate governance system in Iran. For other conditions, the consistency values ranged from 0.571429 to 0.914286, indicating a reasonable relationship. Coverage in the analysis of necessary conditions indicates the percentage of results covered by a specific condition. Higher values mean better coverage. For the variable of effects and results of the effectiveness of the corporate governance system, it is equal to 1, indicating that this condition covers all the results of the effectiveness assessment. Other conditions also have good coverage values, but some of them, such as the absence of intervening conditions and the absence of key concepts, have lower values. As a result, causal and strategic conditions clearly have a strong relationship with the results.

In response to the second question, how is the evaluation of the effectiveness of the corporate governance system in Iran by analyzing the sufficient conditions of fsQCA? In analyzing the sufficient conditions, we came to six solutions:

In the configurations presented in the first solution, a combination of causal, contextual, intervening, strategies, and outcomes variables in the absence of pivotal variables can provide an evaluation of the effectiveness of the corporate governance system in Iran.

In the configurations presented in the second solution, a combination of causal, contextual, strategies, and outcomes variables in the absence of contextual and intervening variables can provide an evaluation of the effectiveness of the corporate governance system in Iran.

In the configurations presented in the third solution, a combination of causal variables, strategies, and outcomes in the absence of contextual, intervening, and pivotal variables can provide an assessment of the effectiveness of the corporate governance system in Iran.

In the configurations presented in the fourth solution, a combination of strategic and outcome variables in the absence of other variables can provide an assessment of the effectiveness of the corporate governance system in Iran.

In the configurations presented in the fifth solution, a combination of causal and contextual variables in the absence of other variables can provide an assessment of the effectiveness of the corporate governance system in Iran.

In the configurations presented in the sixth solution, a combination of contextual variables, strategies, and outcomes in the absence of causal and intervening variables can provide an assessment of the effectiveness of the corporate governance system in Iran. These findings are in line with the findings of Saman et al. (2022), Feng et al. (2023), Li et al. (2023), and Wu et al. (2023), who have discussed corporate governance and internal controls, which are consistent with the findings of this proposition. It is also in agreement with the studies of Brennan et al., 2019; Yermak, 2017; Hamel and Zanini, 2018, and De Smet, et al., 2021. To improve and evaluate the effectiveness of the corporate governance system in Iran, the following suggestions are provided for politicians and managers:

Strengthening causal variables

☐ Developing laws and regulations: Creating and amending laws related to corporate governance that help companies to be transparent, accountable, and responsible.

☐ Training and awareness-raising: Training programs for managers and board members on corporate governance and its importance in improving the performance of organizations.

Pay attention to contextual variables

☐ Analyzing the economic environment: Reviewing and analyzing the existing economic and social conditions and their impact on the corporate governance system.

☐ Identifying stakeholders: Identifying and considering the needs and expectations of various stakeholders (shareholders, employees, customers, and society) in designing policies.

Using effective strategies

☐ Developing comprehensive strategies: Designing specific strategies for implementing corporate governance principles that include operational plans and evaluation tools.

☐ Establishing independent committees: Forming independent committees to monitor the implementation of corporate governance principles and continuously evaluate performance.

Analyzing results and feedback

☐ Establishing evaluation systems: Setting up regular evaluation systems to review corporate governance results and provide feedback to managers.

☐ Transparent reporting: Publishing periodic reports on the status of corporate governance and its results to stakeholders.

Combining variables in decision-making

☐ Using different combinations: Depending on the specific circumstances of each company, different combinations of variables (causal, contextual, strategies, and outcomes) should be used to assess effectiveness.

☐ Adapting to market conditions: Flexibility in approaches based on market changes and current needs.

Continuous monitoring and control

☐ Monitoring processes: Establishing monitoring mechanisms to ensure compliance with corporate governance principles and identifying problems in a timely manner.

☐ Developing key performance indicators (KPIs): Determining key indicators to measure the effectiveness of the corporate governance system and continuously tracking them.

By implementing these suggestions, politicians and managers can help improve the corporate governance system in Iran and increase its effectiveness.

Overall, our analysis suggests several interesting findings and areas for future research, as well as important factors for organizations to consider if they wish to develop and devote more resources to their corporate governance assessments. We encourage future research to better understand the potential benefits and costs of a comprehensive assessment process. Even among those companies with more robust governance assessments, respondents acknowledged that their company lacks a formal process for systematically drawing conclusions about the evidence gathered across tasks. Therefore, research is needed to design methods for aggregating assessment results across a broad range of corporate governance aspects. Our study suggests that there is a lack of adequate information on corporate governance assessments. With the increase in governance analysts and consulting services, as well as shareholder input on governance issues, future research could also explore the quantification of this process.

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