

# Investigating the relationship between ownership structure, board composition, and company performance: An extensive overview of companies in the textile industry in Iran

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## ABSTRACT – REZUMAT

### Investigating the relationship between ownership structure, board composition, and company performance: An extensive overview of companies in the textile industry in Iran

*The present study examines the relationship between the composition of the board of directors, ownership structure, and company performance in companies that are members of the Iranian capital market. This research has been investigated in a statistical sample of 113 companies from the member companies of Iran's capital market between 2011 and 2021. The results of this research have been analysed by the panel analysis method which we use two internal and external criteria to examine the company's performance. Thus the results show that there is a correlation between the proportion of foreign directors on the board of directors and the concentration of ownership with the company's internal performance criteria. Also, another result of this research is that there is a relationship between the proportion of foreign directors on the board of directors and the concentration of ownership with the external measure of the company's performance. Moreover, this research paper analyses companies in the textile industry in Iran during the sample period.*

**Key-words:** composition of the board of directors, ownership structure, company performance, member companies of Iran's capital market, Covid-19 pandemic, stock market, concentration of ownership, economic wealth, textile industry

### Analiza relației dintre structura proprietății, componența consiliului de administrație și performanța companiei: o privire de ansamblu extinsă asupra companiilor din industria textilă din Iran

*Prezentul studiu examinează relația dintre componența consiliului de administrație, structura proprietății și performanța corporativă în cazul companiilor care sunt listate pe piața de capital din Iran. Acest studiu de cercetare a fost efectuat pe un eșantion statistic de 113 companii selectate dintre companiile membre ale pieței de capital a Iranului, pentru perioada de timp cuprinsă între anii 2011 și 2021. Rezultatele acestei cercetări empirice au fost obținute prin metoda analizei datelor de tip panel, cu ajutorul căreia utilizăm două criterii interne și externe pentru a examina performanța companiei. Astfel, rezultatele arată că există o relație de corelație între ponderea de directori străini în consiliul de administrație și concentrarea proprietății cu criteriile interne de performanță ale companiei. De asemenea, un alt rezultat al acestei cercetări este că există o relație între ponderea de directori străini în consiliul de administrație și concentrarea proprietății cu măsura externă a performanței companiei. Mai mult, această lucrare de cercetare analizează companiile din industria textilă din Iran în perioada eșantionată.*

**Cuvinte-cheie:** componența consiliului de administrație, structura proprietății, performanța companiei, companiile membre ale pieței de capital din Iran, pandemie Covid-19, piață bursieră, concentrarea proprietății, bunăstare economică, industria textilă

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## INTRODUCTION

The outbreak of the novel Coronavirus had essential chains of economic consequences that started in China and affected almost all the economies of the world [1]. The outbreak of the Covid-19 disease has covered almost all the countries of the world (more than 210 countries and regions), and in addition to causing a wave of infections and deaths in most countries of the world, it has involved them in its economic consequences [2, 3]. In recent months, the Covid-19 virus has spread fear and anxiety among people and has severely impacted the world's economic activities [4, 5]. However, the long-term and

precise effects of Covid-19 on economic wealth are still unclear [6]. Financial markets have already responded with dramatic moves; However, it makes forecasting the future cash flow of companies a highly complex problem [7]. The Covid-19 pandemic presents an interesting scenario in which an unexpected shock causes sharp changes in the performance of companies compared to managers' expectations [8, 9]. Increasing shareholders' wealth, growing profits, and creating moral duties and social responsibilities can be considered significant goals of companies [10]. One factor that influences the realization of the aforementioned factors is the proper communication of corporate governance (CG) [11]. Over the past few

years, We have seen numerous and extensive problems in the activities of companies operating in America, Europe, Southeast Asia, and other parts of the world [12, 13]. Examining examples of failed companies shows that although the problems created for them are often specific to each company, It can be said that non-compliance with the principles of CG has been the common cause of the failure of these companies [14, 15].

Differences in CG across countries appear to result from changes in corporate organizational structure, particularly ownership patterns and board composition [16, 17]. Regarding the ownership structure, a conventional classification distinguishes between two general categories of corporate ownership structure [18, 19]. The problem of CG that companies face in each of these areas is different, and the board of directors, as the highest governing body of a company, must adapt its composition and performance to solve the prevailing problem of CG in each case [20–22]. In countries where ownership is dispersed, the dominant problem is the agency problem between shareholders and managers due to the separation of ownership and control [23, 24]. In this case, the board of directors should be configured primarily as an instrument of monitoring and control to align the interests of those who manage the company with the interests of those who provide resources and bear risk [25, 26].

On the other hand, in areas where share ownership is highly concentrated, the problem of CG emphasizes the relationship between small and large shareholders [27, 28]. Therefore, the problem of lack of motivation to monitor shareholders' managers is minimized [29, 30]. However, the problems between large and small shareholders are exacerbated. Issues such as the limited legal protection afforded to investors – are generally extendable to continental European countries [31–33].

There are different aspects of ownership concentration through institutional, managerial, government, family, and foreign ownership [34, 35]. Concentrated ownership has an inverse relationship with a company's performance [36]. The principle of cost-effectiveness suggests that large shareholders will be more motivated to manage and maximize company value than small shareholders [37, 38]. Moreover, concentrated ownership motivates large shareholders to secure their interests at the expense of small shareholders [39, 40]. Concentrated ownership gives more power to a small number of shareholders, which reduces board control. This ultimately reduces the company's reliance on CG practices [41, 42]. In concentrated ownership companies, there are shareholders with high ownership and shareholders with low ownership [43]. High-ownership shareholders have power that they can use to exploit low-ownership shareholders in terms of paying them dividends or transferring profits to other units of the company. This creates a foreclosure opportunity for retail shareholders. In this way, the financial market will be damaged [44, 45]. Ownership concentration always

affects performance in the same way. Major shareholders try to control management and enforce their policies, usually not to management's liking, further compromising independent decision-making.

However, it negatively affects business performance. In cases where there is diversity in ownership and the concentration of a dominant group is low, managers are independent in their decisions and shareholders are not influenced by a particular group [44, 46].

Considering the different and inhomogeneous ownership structure in other countries, which originates from different social, economic, and legal conditions in these countries, the relationship between the ownership structure, the composition of the board of directors, and the performance of the company in the financial markets of developed and developing countries is different. Is. Despite this, little research has been done on the ownership structure and the board of directors, especially its relationship with the company's performance in Iran. Considering the process of privatization and downsizing of the government, which is one of the economic topics of the day, examining the mechanisms of the ownership structure on the performance of companies in Iran's capital market is of double importance. It may even be that the influence of the board of directors on performance is different in particular business cultures. Therefore, this research aims to empirically test the characteristics of the board of directors as an effective CG tool on the company's performance in Iran's business environment.

A study conducted on Jordanian companies showed that the concentration of ownership has an inverse relationship with the performance of companies [47]. Machek& Kubiček [48], in their research on the relationship between ownership concentration and performance, state that theory suggests that low ownership concentration is associated with agency costs and that highly concentrated ownership structures force controlling owners to pursue private interests. Both situations are likely to be associated with negative effects on firm performance. The findings of the study by Chandani and Ahmed [49] showed that the size of the board of directors, the audit committee, and the director's compensation have a positive correlation with the ROA and ROE of the company's performance in the textile industry, and on the contrary, the financial leverage has a negative correlation with the company's performance in the textile industry. Al-Ahdal et al. [50] investigated the impact of CG on the financial performance of companies listed on the Indian Stock Exchange and the Persian Gulf Cooperation Council. Their results showed that board accountability (BA) and audit committee (AC) have an insignificant effect on firms' performance as measured by ROE and Tobin's Q. Similarly, transparency and disclosure (TD) have an insignificant negative impact on firm performance as measured by Tobin's Q. In addition, country dummy results show that Indian companies perform better than GCC companies in terms of CG practices and financial performance. Research findings of Dube et al. [51] support

the agency cost theory that black ownership is negatively correlated with debt ratio (long-term debt) and performance (Tobin's Q [TQ]), and also, black ownership is positively and significantly correlated with asset returns. Finally, their empirical findings indicated that the ratio of long-term debt to total debt-to-market value was lower for black ownership than total ownership, while TQ was higher for black ownership than total ownership. In their research, Asif et al. [52] investigated the financial status and performance of textile companies in the stock market and offered suggestions to improve the shortcomings. They state that the main source of cash in these companies is cash from abroad, while it was observed that the profitability ratios of these companies have an inverse relationship with their debt ratios. It was also observed that the profitability ratios of textile companies are improved with the improvement of liquidity ratios. The findings of Gulzar et al.'s research [53] show that the size of the board of directors and the performance of textile companies are statistically significant with return on assets and Tobin's Q.

Our research aims to examine the relationship between ownership structure, board composition, and company performance. We rely on a large body of research, and the central issue of this research is whether there is a positive relationship between the proportion of foreign directors on the board of directors and company performance. Is there a positive relationship between board size (BS) and company performance? Therefore, this research aims to investigate the member companies of Iran's capital market by measuring the composition of the board of directors, the ownership structure, and the performance of the company using new methods (internal and external criteria). The remainder of the paper is organized as follows. 2<sup>nd</sup> section presents an in-depth literature review and discusses the research hypotheses. 3<sup>rd</sup> section describes the data and methodology. The results and the associated discussions are presented in the 4<sup>th</sup> section. 5<sup>th</sup> section presents the Conclusion of the paper.

## LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT

### External directors on the board with company performance measures

Corporate ownership through stock ownership significantly impacts how companies are controlled [4, 54, 55]. This way, the owners delegated the company's management to the managers, and the stock exchange was formed [56]. Therefore, any problem that arises in the mentioned market is not only an economic problem, but it turns into a social problem in which the general interests of the society will be endangered [57]. To solve the mentioned problems, one of the essential concepts raised in the last two decades, the concept is CG.

Establishing a relationship between agency theory and CG leads to methods that protect the parties' interests [58, 59]. Among the CG mechanisms that

establish effective control over the representative relationship and the resulting conflict of interest are the board of directors and its composition [4]. Rufia et al. [60], in their research, analyse the relationship between board characteristics and financial performance in small and medium enterprises (SMEs). They examined a set of variables related to board characteristics such as composition, characteristics, structure, and processes, and firm-specific characteristics such as annual sales growth, asset value, sales turnover, leverage, firm size (employees), firm age, generational changes. They controlled for director and family ownership and showed a significant correlation between specific board characteristics and financial performance.

The separation of ownership from management at the level of companies has caused a conflict of interest between managers and owners [61]. The relationship between managers and owners is referred to as an agency relationship [62, 63]. The agency relationship is defined as a contract in which a person or persons (owners) hire another person (agent) to perform some services and thereby entrust him with authority to make some decisions [4]. This representation and power may train opportunistic managers who invest in projects that serve the interests of the manager instead of the interests of the shareholders [64]. In recent years, CG, which includes a set of relationships between shareholders, managers, auditors, and other stakeholders, has been proposed as a means of reducing the amount of conflict between different shareholders, as well as the separation of ownership from the control of a business entity [31, 65, 66]. The findings of Baldacchino et al. [67] indicate that, while Boards of Director evaluations are carried out in Maltese-listed companies, they lack the necessary formal structures that specify critical evaluation measures. Thus one may infer that those charged with the responsibility of conducting evaluations are not being well determined. By departing from the recommendations of the Maltese CG Code on performance evaluations, Maltese-listed companies have generally opted to resort to an inward and more restricted assessment style, doing away with external or independent parties in the process. Mishra et al. [68] in their research to study the performance of the company, use accounting-based performance measures such as return on assets (ROA) as well as market-based. Performance measures such as Tobin's Q (TQ). Their results show that, on the one hand, BS, board activity, and promoter ownership positively affect firm performance, while on the other hand, board meetings are negatively related to firm performance. However, Poni and Analcinia's [69] studies show that ownership structure is the only essential condition of CG in determining the performance of Syrian companies, as it is positively and significantly loaded on company performance proxies (ROA and EPS) and also, the analysis of ownership structure items shows that foreign ownership is the main source of this positive and significant effect. Nakhai et. al. [70] state that the structure of the board

of directors has a positive effect on the Tobin ratio and it is not significant for other variables. CG also has a positive effect on the measures of dividends, return on assets, return on equity, and unconditional conservatism, but it is not significant for the Tobin ratio and stock return. The research findings of Mashayikhi et al. [71] indicate that none of the independence of the board of directors and the leadership structure, as well as their combination, have any relationship with the company's performance. However, the research showed that about 76% of the surveyed companies had a non-combined management role; on average, 60% of their board members were non-executive directors. The results of Shomali and Abumsha [72] show a positive and significant relationship between managerial ownership, macro ownership, and foreign ownership and stock performance and an important negative relationship between foreign ownership and stock performance. In their research, Ammar et al. [73] investigated corporate governance and performance: empirical evidence from the textile sector of Pakistan. Their empirical findings showed a positive relationship between the board of directors and the size and performance of the company. Another result of this research is that the dichotomy between the percentage of non-executive directors and the executive director has a negative relationship with the company's performance. According to the above contents, as well as the control of the key and important daily decisions of the business unit by professional managers and other regulatory agents, "how to control managers by shareholders" can be considered one of the main goals of CG. CG involves establishing a control system to respect the rights of the shareholders, as well as correctly implementing the resolutions of the shareholders' meetings and preventing possible abuses [73–75]. Therefore, according to the stated contents, the first hypothesis of the research is written as follows:

**H1:** There is a relationship between the proportion of foreign directors on the board of directors and company performance measures.

### **Board size (BS) and firm performance measures**

Establishing a relationship between agency theory and CG leads to methods that protect the parties' interests [59, 76, 77]. Among the CG mechanisms that establish effective control over the agency relationship and the resulting conflict of interest is its board of directors [78, 79]. The board of directors is an essential element in the organizational structure of any company, which is considered the axis of communication between shareholders and managers, and because of this, it plays an essential role in CG at the company level [80, 81]. Most of the discussions in this area also deal with achieving an optimal composition of the board of directors [82, 83].

The board of directors is key in doing the best possible CG at the level of companies [84, 85]. The board of directors is the most important factor through which shareholders can control executive management

[86]. In the subject literature of this topic, various empirical studies have been conducted that have investigated various aspects of the relationship between the board of directors and the company's performance [87–89]. The turning point of these studies is the board of directors' effectiveness in monitoring the process of maximizing the value of shareholders' shares [90, 91]. The size, composition, and number of independent board members of the board of directors have been among the characteristics used and tested in numerous studies as factors to evaluate the company and its performance [92, 93]. Arab Mazarizdi et al. [94] stated in their research that CG variables, including the number of board members, the number of non-executive board members, and the number of significant shareholders, do not affect the return on equity. Still, on the other hand, these variables are effective on Tobin's Q and also, on other hand, the results of this research are that the number of board members has a negative and, of course, insignificant effect on Tobin's Q. Still, the number of non-commissioned members of the board of directors and the number of significant shareholders has a positive but insignificant impact on Tobin's Q. The results of the research of Al-Mashadani et al. [95] revealed that the survey revealed some CG mechanisms such as BS, diversity in gender, ownership structure board independence, and firm performance indicators like return on assets are almost have a positive link with firm performance. The results of Pohesh Yan et al. [96] show that there is a negative correlation between the size of the board of directors and the company's performance. In Hendriani and Robianto's research [97], the company's performance is determined by the market criterion (Tobin's Q). The findings of this research indicate that institutional ownership and board independence only have a positive effect on Tobin's Q value. At the same time, BS can also increase Tobin's Q. This research also shows that BS has a non-linear relationship with investment as a proxy of IOS. At the same time, IOS variables can mediate the effect of BS on firm performance. The results of the research of Nepal and Deb [98] show a significant positive relationship between the size of the board of directors and the performance of textile companies, and another result of this research is that an important inverse relationship between the independence of the board of directors and financial performance has also been shown. This agrees with the policy implications as the inclusion of more board members is likely to increase firm performance. The study of Bashir and Asad [99] showed that BS and board meetings (BM) have a significant effect on textile company performance; in addition, the moderating effect of leverage on the relationship between board meetings and textile performance is significant. Is, but it is insignificant to the performance of the textile company. The results of Ahmed et al.'s research [100] showed that board characteristics do not significantly moderate the relationship between structural capital and business performance in textile industries.

Larmou and Vafeas [101] state that BSis positively correlated with firm value in inter-firm tests, changes in BSare associated with annual stock returns, and larger BSis positively associated with shareholder value. In her research, Guest [102] states the positive relationship between the size of the board of directors and the company's performance. According to the above, the second hypothesis of the research is as follows:

**H2:** there is a relationship between the size of the board of directors and the company's performance measures.

### **Ownership concentration with company performance measures**

A CG mechanism to prevent managers from deviating from owners' interests is centralized ownership [66]. Large investors have sufficient incentive to obtain information, control managers, and exercise CG over management decisions [103, 104].

Meanwhile, large shareholders can choose their representatives on the board of directors and prevent the management from controlling the board of directors [90, 105]. Large shareholders will be more effective in exercising their voting rights than small investors [106]. Non-separation of ownership and management so that problems of representation are rarely seen, the concentration of ownership in a group with a small number of shareholders (founding members, state ownership), transfer of wealth from minority shareholders to majority shareholders, weak protection of investors in Wamkan's articles of association [107, 108]. Abuse of power by the majority shareholders is one of the characteristics of this type of ownership [109, 110]. Centralized ownership does not rely much on the legal system, and in terms of significant shareholders, it can be classified with bank ownership and control, ownership of financial institutions, family ownership, managers, government companies, and other significant natural and legal entities [111]. Therefore, it can be said that agency problem is one of the main topics in financial research these days. The emergence of agency problems is strongly influenced by the firm's high concentration and low ownership. Firms with a highly concentrated ownership structure will have greater agency conflict compared to firms with a low ownership structure [112]. Companies with high ownership concentration make the shareholders control the majority of the management and even become part of its management [42]. Majority shareholders can expropriate minority shareholders [113, 114]. There are two activities by which the majority shareholders can take advantage of the policy control they have, first through the company's operating policy, including granting high salaries and benefits, bonuses, and large compensation to the majority shareholders. The second way is through contractual policies with other parties [115].

The results of Nashir and Gupta [116] show that concentrated ownership reduces agency costs because block holders actively monitor firm management,

thereby leading to better firm performance. Gupta et al. [117] state that the largest shareholder has a positive effect on performance. Horobet et al.'s study [118] deals with the relationship between ownership concentration and company performance in the manufacturing sector in the European Union in an economic environment under the pressure of global financial crises and government debt and states that there is a positive relationship between ownership concentration and company performance for western companies, but for established companies, This is not the case in the East. The research results of Iwazaki and Mizobata [119] indicate the existence of a statistically significant and positive effect of ownership concentration on company performance. The results of Afghan et al. research [120] showed that the final shareholders' voting rights clearly and negatively affect Tobin's  $q$ , while the square of voting rights affects it positively. The results of Mashaikh et al. [121] show a significant relationship between ownership concentration and EPS measure at the 95% confidence level. The greater the concentration of ownership, the more control is exerted on managers and improves the performance of companies, and the relationship between the concentration of ownership and efficiency measures depends on the type of ownership and the factors affecting efficiency. According to the stated contents, the third hypothesis of the research is stated as follows:

**H3:** There is a relationship between ownership concentration and company performance measures.

## **DATA DESCRIPTION AND METHODOLOGY**

### **Sample selection**

To test our proposed hypotheses, we consider listed companies in the Tehran Stock Exchange, markets for which all data were available. Tehran Stock Exchange was established in February 1968 based on the law approved in May 1966. The activity period of the Stock Exchange can be divided into four periods: the first period (1978–1968), the second period (1980–1989), the third period (1989–2005), and the fourth period (from 2005 to now). The stock exchange means an organized and formal capital market in which the buying and selling of company shares government bonds, or private institutions are done under specific rules and regulations. An essential characteristic of the stock exchange is the protection of the law for the owners of savings and stagnant funds and the legal requirements for capital applicants.

In terms of microeconomics, the stock market is a very close example of a perfectly competitive market. Goods are homogeneous in the stock market, and due to the presence of a large number of buyers and sellers in it, as well as the freedom of entry and exit of forces, the set prices are very close to the equilibrium prices. By creating a competitive environment as an economic tool, the stock exchange allows profitable companies to obtain financing through the sale of shares. On the contrary, loss-making companies automatically go out of business. In this way, with

such separation, the market can deal with the optimal allocation of resources.

All data were hand-collected from companies' financial reports provided on the websites: <https://www.tsetmc.com>, <https://www.fipir.com> and <https://www.codal.ir>.

A corporation had to meet five main criteria to be included in the study's final sample: non-financial listed firms, accessibility to a corporation's complete 10-year annual reports from 2011 to 2021 inclusive, and the accessibility to a corporation's corresponding accounting/financial data for the same period. The criteria were set for several reasons. First, banks and insurance companies were excluded because of their specific rules and regulations. Second, the criteria helped meet the requirements for a balanced panel data analysis, whose benefits have been widely articulated.

Table 1 displays the sample selection procedure over the period 2011–2021. Our initial sample comprises 349. All companies admitted to the stock exchange. We exclude 69 Companies under investigation except for investment, holding, and financial intermediation companies, 51 Companies that have been admitted to the stock market after 2011, and 26 firms During the research period, the trading of the company's shares has been stopped or cancelled in the Tehran Stock Exchange for more than six months, 32 firms Their fiscal year does not end on March 19 every year and 58 firms Their information and financial statements from 2011 to 2021 are not fully available, giving us a final sample of 113 firms with a total of 1,130 firm-year observations.

Table 1

RESEARCH SAMPLE SELECTION METHOD		
Row	Terms and restrictions	Number
1	All companies admitted to the stock exchange on 2021/03/19	349
2	Companies under investigation except for investment, holding, and financial intermediation companies	(69)
3	Companies that have been admitted to the stock market after 2011	(51)
4	During the research period, trading the company's shares was stopped or cancelled in the Tehran Stock Exchange for more than six months.	(26)
5	Their fiscal year does not end on March 19 every year	(32)
6	Their information and financial statements from 2011 to 2021 are not fully available	(58)

We have a sample of companies based on the industry in table 2.

As can be seen from table 2, the highest percentage is related to Textile Industry with a company in the statistical sample and the lowest percentage is related to iron and steel with one company in the statistical sample.

Table 2

SAMPLE COMPANIES BY INDUSTRY		
Industry	Number of observations	
	N	%
Iron and steel	1	0.8
Car and parts	20	17
Cement-lime-gypsum	16	14.1
Chemical	10	8.8
Basic metals	6	5.3
Tile and ceramics	5	4.4
Steel industry	4	3.5
Textile Industry	23	20.3
Rubber and plastic	3	2.6
Equipment and machinery	6	5.5
Pharmaceutical materials	16	14.1
Food – sugar	3	2.6
Total	113	100

## Variables of the study and research models

### Variables of the study

In this research, our dependent variable is the company performance, which is the same as Ganguli and Guha Deb's [122] research, which divides the company's performance into two internal and external criteria. Our independent variables are the concentration of ownership (P\_HOLD), the size of the board of directors (BD\_SIZE), and the ratio of foreign directors (BD\_IND).

Where

I. **PERFORM** = firm performance is measured by:

$$a. \text{Tobins } Q(TQ) = \frac{(\text{Market Value of equity shares} + \text{book value of preference shares and debt})}{\text{Book Value of Total Assets}}$$

$$b. \text{Return on Assets: } ROA = \frac{EBITDA}{\text{Total Assets}},$$

where EBITDA is the earnings before interest, depreciation tax, and amortization and is taken as the measure for accounting profitability.

II. **P\_HOLD** = Ownership concentration is the total percentage of shares of shareholders who own more than 5% of the company's shares.

III. **BD\_SIZE** = A board of directors with a large number of directors may not be useful for the company and may bring a lot of costs. It seems that a larger board of directors will improve its supervisory function and thus be more effective, but on the other hand, the board of directors may become too large, and subsequently, the quality of communication in it will also be affected by this issue. Similar to the sensitive research of Hassas Yaganeh et al. (2008), the size of the board of directors is considered one of the independent variables. BS is calculated using the natural log of the total number of board members in each fiscal year [123].

IV. **BD\_IND** = to measure the variable of the ratio of foreign directors, similar to the research of Dimitropoulos and Asteriou (2010) and Ghaemi and Shahriari (2009), the ratio of the number of non-commissioned directors to the total number of board members has been used to measure it [124, 125].

To avoid model misspecification, this study considers various control variables that may potentially affect the dependent variable. Previous studies [122, 126] control firm size, leverage, and dividend as key variables. The control variables are measured as follows:

V. **FM\_SIZE** = Company size measured by sales report.

VI. **LEV** = the company's leverage, which is measured by the ratio of the book value to the book value of total assets at the end of the year.

VII. **DD** = dividend per share of the company *i* at the end of year *t*

Based on the literature [122, 127], we hypothesize that there can be an endogeneity between P\_HOLD and performance variables, so we use OLS regression to estimate where the lag of promoter stock (P\_HOLDLAG) to It is used as an instrumental variable. (iv) in models. Wooldridge (2009) suggests that the criterion for choosing IV is that it should be such a variable that is determined outside of the structural equation, uncorrelated with the error term, and correlated with the explanatory variable [128]. P\_HOLDLAG meets all criteria. Typically, OLS estimation is efficient when the explanatory variables are exogenous [129]. We perform the endogeneity test [130] to determine whether OLS is necessary for our models. Based on the test results, we conclude that there is endogeneity between ROA and P\_HOLD, but the latter is endogenous when Tobin's Q is used as a performance measure. We also test whether there is an endogeneity of BS and performance, but the result does not indicate the existence of such a relationship.

To understand the impact of various levels of concentration of ownership on market performance, we also carry out a 'piecewise regression' which is a standard approach adopted in empirical research

involving data non-linearity [122, 131, 132]. Here we repeat both models (1) and (2) for various ranges of ownership concentration. This is primarily to explore the possibility of the existence of a 'nonlinear' relationship between ownership concentration and firm performance, as identified in other empirical works detailed elsewhere.

#### Research models

Morck et al. [133] use a 'piecewise' linear regression model where they demonstrate that Tobin's Q of firms first rises as ownership concentration increases to 5%, then falls for ownership concentration levels between 5 and 25%, and finally rises as ownership concentration continues to increase. Different measures of ownership concentration have been used in previous studies. Morck et al. [133], and Loderer and Martin [134] take shareholding by the directors, while Hermalin and Weisbach [135] consider shares held by the CEO and former CEOs still on the board as a measure of ownership concentration. The models we use are as follows:

$$ROA = \alpha_0 + \alpha_1 P\_HOLD + \alpha_2 BD\_SIZE + \alpha_3 BD\_IND + \alpha_4 FM\_SIZE + \alpha_5 LEV + \alpha_6 DD \quad (1)$$

$$TobinsQ(TQ) = \alpha_0 + \alpha_1 P\_HOLD + \alpha_2 BD\_SIZE + \alpha_3 BD\_IND + \alpha_4 FM\_SIZE + \alpha_5 LEV + \alpha_6 DD + \alpha_7 ROA \quad (2)$$

## RESULTS AND DISCUSSION

### Descriptive statistics and univariate analysis

The statistical method used in this research is the regression method using combined data. The hypotheses were tested through the results of econometric models and multivariable F regression. Fisher's statistic was used to determine the regression model's significance. To investigate the importance of the coefficient of independent variables in each model, the Student's test was used at the 95% confidence level. The statistical analysis of the data was done with the help of E-Views statistical software. Table 3 summarizes the basic descriptive statistics of the regression variables of the sample companies Listed in the Tehran Stock Exchange from 2011 to 2021.

Table 3

DESCRIPTIVE STATISTICS									
Indicators	P_HOLD	ROA	TQ	B_SIZE	BD_IND	FM_SIZE	DCS	DD	LEV
Mean	71.68452	0.144486	2.550432	5.046018	0.629001	14.27493	0.690265	905.3265	0.551909
Median	75.42500	0.113039	1.598851	5.000000	0.600000	14.10366	1.000000	300.0000	0.555155
Maximum	99.00000	0.830346	46.97168	7.000000	1.000000	20.46713	1.000000	64000.00	2.077506
Minimum	0.000000	-0.404462	0.446999	3.000000	0.000000	7.101676	0.000000	0.000000	0.012734
Std. Dev.	19.38404	0.157479	3.060620	0.354157	0.241730	1.599109	0.462589	2809.831	0.227008
Skewness	-1.262494	0.643675	6.440364	3.757125	-0.979258	0.559128	-0.822976	15.92761	0.348110
Kurtosis	4.840726	4.042104	66.06148	30.40341	3.977120	4.506279	1.677289	324.3723	5.409987
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

This part presents some concepts of descriptive statistics of variables including mean, median, minimum and maximum observations, standard deviation, skewness, and kurtosis. The essential central index is the average, which indicates the distribution's balance point and centre of gravity and is a suitable index to show the centrality of the data. The median is another central index that shows the state of society. As the results show, the average ROA variable is equal to 0.1130, which indicates that 11% of the data are less than this value and the rest are more than this value. An important point that can be inferred from the comparison of the mean and median is the issue of the normality of the data. One of the essential parameters of data dispersion is the standard deviation. An important point that can be deduced from a variable's standard deviation is entering the variable in the regression model. As can be seen in the table, the standard deviation of the variables is not zero, so the studied variables can be included in the model. The degree of asymmetry of the abundance curve is called skewness. If the coefficient of skewness is zero, the society is completely symmetrical, and if the coefficient is positive, there is a skew to the right, and if it is negative, there is a skew to the left. For example, the skewness coefficient of the variable TQ is equal to 6.4403, which means that this variable is skewed to the right and deviates from the centre of symmetry by this amount. The amount of elongation of the abundance curve compared to the standard curve is called protrusion with elongation. If the elongation is around zero, it means that the abundance curve is balanced and normal in terms of elongation. If this value is positive, the curve is prominent, and if it is negative, the curve is wide. In this research, all the variables are positive.

### Examining the collinearity of explanatory and independent variables

One of the regression assumptions is the absence of collinearity between explanatory variables in the model, so before estimating the model, this problem is controlled by calculating the correlation matrix. The correlation coefficient and significance level are calculated to check the collinearity between the model's explanatory variables. The matrix of correlation coefficients is according to table 4 and table 5.

Tables 4 and 5 show the two-by-two correlation values of all variables except for the dependent variables. The first number is the degree of correlation and its significance probability. Since there is no high correlation between the variables, there is no problem of collinearity between the variables.

### Analysis of final models and testing of research hypotheses

The results of the analysis of the first research model, which examines the proportion of foreign managers, the size of the board of directors, and the concentration of ownership with the internal measures of the company's performance in panel A and the results of the analysis of the second model of the research which examines the proportion of external managers, the size of the board of directors and the concentration of ownership. It deals with the external measures of the company's performance in the panel B, can be seen in table 6.

The value of the F statistic and the probability value for panel A are 52.36815 and 0.000, respectively, which indicates the significance of the model in general (because the probability value of this statistic is less than 0.05). The most famous statistic of the goodness of fit is the coefficient of determination, whose value is between zero and one. If the coefficient of determination is large and close to one, the model has fitted the data well, while if R2 is low, i.e., close to zero; the model has not provided a good fit

Table 4

CORRELATION MATRIX BETWEEN EXPLANATORY VARIABLES IN THE FIRST MODEL						
Correlation Probability	P_HOLD	B_SIZE	BD_IND	FM_SIZE	LEV	DD
P_HOLD	1.000000					
	-----					
B_SIZE	-0.061626	1.000000				
	0.0383	-----				
BD_IND	-0.067629	-0.016194	1.000000			
	0.0230	0.0866*	-----			
FM_SIZE	0.068641	0.038951	0.029095	1.000000		
	0.0210	0.0007	0.0285	-----		
LEV	0.099871	-0.053921	-0.221078	0.109058	1.000000	
	0.0008	0.0700*	0.0000	0.0002	-----	
DD	0.104831	-0.022333	0.040084	0.157914	-0.162612	1.000000
	0.0004	0.4533***	0.1781***	0.0000	0.0000	-----

Note: \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.



Table 5

CORRELATION MATRIX BETWEEN EXPLANATORY VARIABLES IN THE SECOND MODEL							
Correlation Probability	P_HOLD	B_SIZE	BD_IND	FM_SIZE	LEV	DD	ROA
P_HOLD	1.000000						
	-----						
B_SIZE	-0.061626	1.000000					
	0.0383	-----					
BD_IND	-0.067629	-0.016194	1.000000				
	0.0230	0.5866***	-----				
FM_SIZE	0.068641	0.038951	0.029095	1.000000			
	0.0210	0.1907***	0.3285	-----			
LEV	0.099871	-0.053921	-0.221078	0.109058	1.000000		
	0.0008	0.0700*	0.0000	0.0002	-----		
DD	0.104831	-0.022333	0.040084	0.157914	-0.162612	1.000000	
	0.0004	0.4533***	0.1781***	0.0000	0.0000	-----	
ROA	0.058331	-0.006312	0.170124	0.141908	-0.675855	0.435746	1.000000
	0.0500	0.8322***	0.0000	0.0000	0.0000	0.0000	-----

Note: \*\*\*, \*\*, and \* indicate significance at the 1%, 5%, and 10% level, respectively.

Table 6

HYPOTHESIS TEST RESULTS								
Panel A ROA					Panel B Tobins Q(TQ)			
Variable	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient	Std. Error	t-Statistic	Prob.
P_HOLD	0.000144	0.000173	3.832957	0.0051***	-0.023205	0.003553	-6.530617	0.0000***
B_SIZE	-0.007016	0.005970	-1.175111	0.2402	0.054481	0.133811	0.407151	0.6840
BD_IND	-0.029853	0.007426	-4.020086	0.0001***	-0.447636	0.166389	-2.690302	0.0073***
FM_SIZE	0.040652	0.002787	14.58639	0.0000***	1.150745	0.057982	19.84653	0.0000***
LEV	-0.414175	0.016045	-25.81295	0.0000***	0.742965	0.315361	2.355918	0.0187**
DD	1.92E-05	1.48E-06	12.97977	0.0000***	-2.85E-05	1.29E-05	-2.217360	0.0268**
ROA					4.979324	0.435146	11.44289	0.0000***
C	-0.180737	0.060820	-2.971665	0.0030***	-13.30999	1.262870	-10.53948	0.0000***
R-squared	0.859397	Mean dependent var		0.180206	R-squared	0.623922	Mean dependent var	5.093545
Adjusted R-squared	0.842986	S.D. dependent var		0.188450	Adjusted R-squared	0.579611	S.D. dependent var	4.493318
S.E. of regression	0.079294	Sum squared resid		6.356741	S.E. of regression	2.547237	Sum squared resid	6553.299
F-statistic	52.36815	Durbin-Watson stat		1.891161	F-statistic	14.08075	Durbin-Watson stat	1.621049
Prob (F-statistic)	0.000000			Prob (F-statistic)	0.000000			

of the data. In panel A, the coefficient of determination is equal to 0.859397, which shows that the model has provided an acceptable fit. Also, the value of the adjusted coefficient of determination (Adjusted R-squared) is equal to 0.842986, based on which it can be said that this model is more than 84 percent of changes in the dependent variable, i.e., the company's internal performance measures that explain the return on assets (ROA). Watson's camera statistic

shows the correlation between the model's residuals and is within the permissible range of 1.5 to 2.5.

As can be seen in panel A, there is a negative relationship between the proportion of external directors on the board of directors and the company's internal performance measures, which according to the research of Mishra et al. [68] and Shomali and Abumsha [72]. The results show that the lower the ratio of foreign managers on the board of directors,

the better the performance of the companies, and conversely, the higher the ratio of foreign managers on the board of directors, the worse the performance of the companies.

As seen in panel A, considering that the p-value for the coefficient of the BS variable is greater than 0.05, it indicates that there is no relationship between the size of the board of directors and the internal measures of the company's performance. Regarding the possible reasons for rejecting this hypothesis, it can be pointed out that according to Article 701 of the Trade Law in Iran, the number of board members of most of the Tehran Stock Exchange companies is five, and a low percentage of these companies is more than five. At the same time, the increase in the number of members also brings with it problems, among which we can mention the increase in costs, problems caused by the coordination of members, and as a result, the quality of communication between them decreases.

Also, according to the results listed in panel A, considering that the p-value for the variable coefficient of ownership concentration is less than 0.05, it indicates that there is a positive relationship between ownership concentration and the company's internal performance measures. Mork et al. [136] state that large shareholders have their interests, which are sometimes not compatible with the interests of other shareholders. Perhaps the reason for the performance of companies with a centralized ownership structure can be found in this factor. As seen, the ownership concentration positively affects the company's performance, and the more the ownership of the largest shareholder increases in the company's ownership structure, the more its performance will increase. Thomson and Peterson [137] also found a positive and significant relationship between concentrated ownership and economic performance as a dependent variable.

In panel B, the value of the F statistic and the probability value for the overall model are 14.08075 and 0.000, respectively, which indicates the significance of the model in general (because the probability value of this statistic is less than 0.05). The most famous goodness-of-fit statistic is the coefficient of determination, which has a value between zero and one. If the coefficient of determination is large and close to one, the model has fitted the data well, while if R<sup>2</sup> is low, i.e., close to zero; the model has not provided a good fit of the data. In the above table, the coefficient of determination is equal to 0.623922, which shows that the fitting model is acceptable. The percentage of changes in dependent variables, i.e., external functions, has explained the company's performance (Tobin's Q ratio).

In panel B, we first examine the relationship between the proportion of foreign directors on the board of directors and the external measure of company performance. As can be seen, the p-value for the variable coefficient of the proportion of foreign directors in the board of directors is less than 0.05, which indicates a negative relationship between the proportion

of foreign directors in the board of directors and the external measures of the company's performance. That is, with the increase in the proportion of foreign directors on the board of directors, the value of Tobin's Q decreases, and this decrease is statistically significant.

Considering that the p-value for the coefficient of the BS variable is greater than 0.05, it indicates that there is no relationship between the BS and Tobin's Q, which according to the search of Ganguli and Guha [122] and considering that the p-value for the variable coefficient of ownership concentration is less than 0.05, it indicates that there is a negative relationship between ownership concentration and Tobin's Q, which our results are in accordance with the research of Nashir and Gupta [116] and Horobet et al. [118].

## CONCLUSION

The conflict of representation between the owners and managers of joint-stock companies has caused the shareholders to think of aligning the interests of the managers with the interests of the owners of the companies, and to achieve this, They found the best solution for examining the ownership structure and composition of the board of directors based on the performance of the companies [138–140]. The use of innovative techniques based on artificial intelligence provides certain advantages to companies, including moving towards optimization of cost advantage [141]. On the other hand, Ehsanifar et al. [142] examined relevant aspects of the Iranian companies from the construction industry based on the influence of certain factors on risk management strategies such as technological, cultural and economic factors considering the impact of uncertainties and lack of information. Moreover, there are research studies which highlight the advantages of using innovative approaches such as Building Information Modeling (BIM) for the sustainable development of companies and the achievement of increased financial performances [143].

The present research has examined the relationship between the composition of the board of directors, the ownership structure, and the company's performance in the companies that are members of the Iranian capital market. It has been investigated using a sample of 113 companies with continuous data between 2011 and 2021. Forming a limited liability company and opening the ownership of the company to the public has a significant impact on the way companies are run. The market system was organized so that the company owners delegate the company's management to the company managers. The separation of ownership from management leads to the generality of the representation problem.

The main purpose of this study is to examine the relationship between the composition of the board of directors, ownership structure, and company performance in companies that are members of the Iranian capital market. The importance of this research is

that the empirical approach to managers, investors, and other decision-makers shows that the different ownership structure of listed companies affects their performance. Economic growth and development, the increase of joint-stock companies, and the separation of management from ownership have turned agency issues into one of the essential concerns of investors today. In agency relations, the owner's goal is to maximize wealth; to achieve this goal, they monitor the agent's work and evaluate his performance. In this case, the question that can be investigated is whether the different ownership structure of companies affects their performance. According to the obtained results, it can be stated that the institutional owners cause the better performance of the companies due to effective supervision and having the necessary resources and expertise to manage the companies. Because in this research, there is a relationship between the concentration of ownership and the internal measures of the company's performance, it is better to have the ownership of the shares of the companies in the hands of several institutional institutions to improve the performance of the companies. The findings of this study for the legislators and investors of the companies that determine the maximum limit of the founders' shares and the minimum presence of foreign directors on the board of direc-

tors of companies that are members of the Iranian capital market, which may affect the company's performance in terms of liquidity, representation, and asymmetry of information. To be is of particular importance. This research provides new insight into the relationship between board composition, ownership structure, and performance of Iranian capital member companies. The findings of this study have different applications in developing countries that have a strong legal framework to protect investors.

## RESEARCH LIMITATIONS

In all the research that takes place, limitations are an integral part of the research. Because these are the limitations that provide the ground for future and new research, this research is not an exception to this rule and has the following limitations:

1. Due to the multitude of models presented to measure the company's performance, using different models may lead to different results.
2. The items included in the text of the financial statements have not been adjusted due to the effects of inflation. Since the business units were established at different times and acquired their assets at different times, the quality of comparison is high. Some items can affect the results of the research and generalize the results with limitations.

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