Reevaluating the Impact of Corporate Governance Mechanisms on Investment Management, Financing Strategies, and Corporate Performance

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Citation:

Abstract

This study aimed to propose a model for analyzing the effects of six corporate governance mechanisms (i.e. institutional ownership, management ownership, board ownership, board size, non-executive board members, and CEO duality) on investment management, financing methods, and corporate performance. The statistical population included the companies listed on the Tehran Stock Exchange from March 21, 2012 to March 21, 2019. The systematic sampling method was employed for a case study, and the multiple regression analysis was performed in EViews to test the research hypotheses. According to the results, corporate governance mechanisms had significant relationships with investment management and corporate performance. There were also significant relationships between corporate governance variables (i.e. board ownership, board size, non-executive board members, and CEO duality) and financing methods. In addition, there was an inverse relationship between management ownership and financing methods. Finally, no significant relationship was found between institutional ownership and financing methods.

Keywords: Corporate governance, Investment management, Financing methods, Corporate performance.

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1 | Problem Statement

Worldwide economic growth has led to the advent of large corporations, most of which have to sell stocks to survive [1]. In addition, in today's competitive environment, recent technological developments have helped capital markets gain the trust of many companies [2]. Due to their weak corporate governance systems, large corporations such as Enron, WorldCom, and Xerox almost went bankrupt and imposed heavy economic losses on their investors and shareholders [3]. Similar failures have led to more legal barriers in other countries [4]. Today, capital markets better understand the quality of corporate governance systems and their impacts on macroeconomic components by reducing some agency problems. Studies indicate that agency problems are mainly caused by conflicts of interest between controlling shareholders (managers) and non-controlling shareholders (shareholders). The agency theory states that shareholders may reduce agency problems by using corporate governance mechanisms [5]. The term "corporate governance" is derived from the Greek word "Keyberman," which means guidance or governance [6]. The corporate governance system is a set of cultural instructions, structures, processes, and norms that may lead to transparency in business processes and stakeholder accountability [7]. Corporate governance is a global issue [8]. Investment and financing decisions are critical choices made by financial managers. Investments aim to maximize shareholders' wealth [9]. Companies are always provided with many investment opportunities; thus, they must make rational investment decisions. At the same time, business units possess limited resources with specific efficiency rates [10]. Efficient corporate governance mechanisms are essential for ensuring the proper performance of the capital market and the national economy as a whole, as well as maintaining public trust because corporate governance ensures firms' effective use of capital [11]. Numerous studies have analyzed the relationships between corporate performance and characteristics and variables of ownership structure and board composition [12], [13]. However, to what extent do these relationships reflect general principles such as the "inherent conflict between shareholders and managers"? How do institutional structures affect (i.e., reduce or intensify) such tensions [14]? The main goal of the legislator is to reduce systematic corporate risks; however, this might contradict the main goal of stakeholders, who try to maximize their share value.

In this study, several hypotheses were proposed to analyze the effects of six corporate governance mechanisms (including institutional ownership, management ownership, board ownership, board size, ratio of non-executive board members, and CEO duality) on investment management, financing methods, and corporate performance of the studied companies. The multiple regression analysis was used for hypothesis testing in this applied study. Similar studies were reviewed and discussed in research background to clarify the strengths of the present research and specify its main purpose. In the research method, the research hypotheses were proposed and tested, and the research model was developed. The findings were presented and analyzed in results. Finally, several suggestions were made for future research in discussion after the main research results were discussed.

2 | Research Background

Corporate governance consists of a series of cultural, institutional, and legal practices associated with firm management. It is important for companies to acquire a proper understanding of mechanisms that can protect their investment decisions during economic recessions. Therefore, corporate governance is crucial in all operational and strategic decision-making processes. In this section, the research literature was reviewed to identify and overcome the shortcomings of previous studies. For this purpose, the software program developed by the Space Website was utilized to design a suitable chart of the research background, and 11 papers published between 2007 and 2020 were then selected and reviewed to provide the authors with a general understanding of the research subject. Wahyudi [15] conducted a study entitled effects of corporate social responsibility disclosure and good corporate governance implementation on cost of equity. She [15] used multivariate regression test and found that management ownership had no effect on investment decisions; however, institutional ownership negatively affected investment decisions. Managerial and institutional ownership had no effects on profitability. In addition, institutional ownership did not affect firm

value; however, management ownership, investment, and profitability had positive effects on firm value. Management ownership positively effects firm value by enhancing short-term investment decisions; however, institutional ownership had a negative effect on firm value.

Ahmad Salin et al. [16] analyzed the effects of corporate governance mechanisms (board independence, board size, and management ownership) on investment efficiency. They selected the top 200 Malaysian companies listed in Bursa Malaysia, and used Binomial logistic regression analysis to test the hypotheses. They concluded that only the variable of board size can affect corporate investment, while the variable of board independence and management ownership can prevent the inefficiency of corporate investment decisions. Kobuthi et al. [17] analyzed the impact of corporate governance on the performance of firms listed in Nairobi Securities Exchange (NSE). They observed a significant relationship between corporate governance and non-financial performance of the studied firms. This implies that organizations can improve their performance by implementing good corporate governance, especially by focusing on the main features of good corporate governance. Magnusson and Enarsson [18] investigated the effect of CEO entrenchment in the relationship between corporate performance and CEO turnover, and found that poor corporate performance leads to CEO turnover. They also argued that CEO entrenchment has a significant effect on the relationship between corporate performance and CEO turnover. Karim and Faiz [19] conducted a study entitled impact of internal attributes of corporate governance on firm performance. They analyzed the collected data by using the panel method. Their findings indicated that ownership concentration had a significant positive relationship with Return On Assets (ROA). Management ownership had a negative relationship with ROA, whereas board size had a positive relationship with this variable. They concluded that internal attributes of corporate governance dramatically affected the performance of companies located in Pakistan. Vu and Nguyen [20] analyzed the relationship between corporate governance characteristics and financial performance of 137 companies listed in Singapore Exchange within the 2013-2016 period. They found an inverse relationship between board size and firm performance. However, firm performance was not significantly associated with the variables of board dependence and CEO duality. Andreou et al. [9] carried out a study entitled corporate governance, financial management decisions and firm performance: evidence from the maritime industry. Based on their results, there were significant positive relationships between corporate governance mechanisms (including institutional and management ownership) and the ratio of non-executive board members. Earnings management was also negatively related with the number of block-holders, board size, and CEO duality. Significant positive relationships were found between over-investment variables and variables of institutional ownership, management ownership, ratio of non-executive board members, and CEO duality; however, board size was negatively associated with the number of block-holders. Zhang [21] investigated the conflict between corporate governance and corporate performance. This study assessed corporate performance changes resulting from CEO turnover. In this study, corporate performance was measured using operating performance and abnormal return methods. The operating performance of firms decreased in the previous period; however, it improved following the CEO turnover. However, unlike most studies, CEO turnover led to negative abnormal returns, indicating that investors did not consider CEO turnover as good news. Sanad et al. [22] used multiple regression analysis to investigate the relationship between corporate governance and Internet Financial Reporting (IFR). They found a poor relationship between corporate governance and IFR because board characteristics do not affect online information disclosure levels. Abor [23] carried out a study entitled corporate governance and financing decisions of Ghanaian listed firms. He used multiple regression analysis to test research hypotheses, and observed significant positive relationships between capital structure and variables of board size, board composition, and CEO duality. CEO tenure was also negatively correlated with capital structure. Using panel data method, Feng et al. [24] conducted a study entitled corporate governance, ownership structure, and capital structure. Board size, ownership concentration, and firm size were found to have positive effects on capital structure; however, institutional ownership and profitability had inverse effects on capital structure. Researchers have conducted many studies on corporate governance in different countries, and have investigated relationships between corporate governance mechanisms and

several variables. However, this is the first study to investigate the effects of all corporate governance mechanisms on financing methods, corporate performance, and investment management decisions in details.

Table 1. Research background.

Author(s)	Statistical Method	Result
Wahyudi and Wieta [15]	Multivariate regression	Management ownership has no effect on investment management and profitability/Institutional ownership has a negative effect on investment and a positive effect on profitability.
Ahmad Salin [16]	Logistic regression	Board size can affect the investment of companies, while board independence and management ownership are able to prevent corporate inefficiency associated with investment decisions.
Kobuthi et al. [17]	Multiple regression	There is a significant relationship between corporate governance and non-financial performance of companies listed in the NSE.
Magnusson and Enarsson [18]	Multivariate regression	CEO has a significant positive effect on the relationship between firm performance and turnover.
Karim and Faiz [19]	Panel data	Corporate governance plays a key role in corporate performance.
Vu and Nguyen [20]	Multiple regression	Researchers found an inverse relationship between board size and firm performance. In addition, no significant relationship was found between financial corporate performance and variables of board dependence and CEO duality.
Andreou et al. [9]	Multivariate regression	Earnings management has negative relationships with the number of blockholders, board size, and CEO duality. Over-investment variables are positively related to institutional ownership, management ownership, ratio of non-executive board members, and CEO duality.
Zhang [21]	Multivariate regression	The operating performance of firms decreased in the previous period, but it has improved following the CEO turnover.
Sanad et al. [22]	Multiple regression	There is a poor relationship between corporate governance and IFR, because board characteristics do not affect online information disclosure levels.
Abor [23]	Multiple regression	Capital structure has significant positive relationships with board size, board composition and CEO duality. The results also indicate a negative relationship between CEO tenure and capital structure.
Feng et al. [24]	Panel data	Board size, ownership concentration, and firm size have positive effects on capital structure; however, institutional ownership and profitability have inverse effects on capital structure.

3 | Research Method

This is a correlational study aiming to discover the relationships of research variables. However, it can also be considered a retrospective study because it determines the causes or updates of the factors of an event or incident. At the same time, this is an applied study seeking to accomplish a scientific goal and produce useful outputs on the existing facts. It was also classified as a descriptive study because it describes real-world situations accurately. This study used historical information for hypothesis testing and review of applied studies based on research objectives. Finally, this can be considered a cross-sectional study due to data analysis about a specific period (2009-2017).

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2.1 | Research Hypotheses

Natural and legal entities now use various methods to invest in different businesses, especially in stock markets. People also try to get information from various sources to maximize their wealth and profit. Therefore, information associated with firms' performance, financing methods, conflicts of interest, and potential firm collapse significantly affects investor decisions and corporate evaluations. This study aimed to analyze the effects of corporate governance mechanisms on investment management, financing methods, and corporate performance of the studied companies. For this purpose, the following hypotheses were developed:

The first central hypothesis: significant relationships exist between corporate governance mechanisms and investment in companies listed on the Tehran Stock Exchange.

– *There is a significant relationship between institutional ownership and investment.*
– *There is a significant relationship between management ownership and investment.*
– *There is a significant relationship between board ownership and investment.*
– *There is a significant relationship between board size and investment.*
– *There is a significant relationship between the ratio of non-executive board members and investment.*
– *There is a significant relationship between CEO duality and investment.*

The second main hypothesis: there are significant relationships between corporate governance mechanisms and the corporate performance of companies listed on the Tehran Stock Exchange.

– *There is a significant relationship between institutional ownership and corporate performance.*
– *There is a significant relationship between management ownership and corporate performance.*
– *There is a significant relationship between board ownership and corporate performance.*
– *There is a significant relationship between board size and corporate performance.*
– *There is a significant relationship between the ratio of non-executive board members and corporate performance.*
– *There is a significant relationship between CEO duality and corporate performance.*

The third central hypothesis: significant relationships exist between corporate governance mechanisms and financing methods of companies listed on the Tehran Stock Exchange.

– *There is a significant relationship between institutional ownership and financing methods.*
– *There is a significant relationship between management ownership and financing methods.*
– *There is a significant relationship between board ownership and financing methods.*
– *There is a significant relationship between board size and financing methods.*
– *There is a significant relationship between the ratio of non-executive board members and financing methods.*
– *There is a significant relationship between CEO duality and financing methods.*

2.2 | Research Model

Three models were used to for hypothesis testing.

The following model was employed to test the hypothesis associated with the effect of corporate governance mechanisms on investment management:

$INVESTMENT = \alpha_0 + \alpha_1 \, INSIDER + \alpha_2 \, INST + \alpha_3 \, BLOCK + \alpha_4 \, B\text{-}SIZE + \alpha_5 \, BRD\text{-}INDT +$

$\alpha_6 \, DUALITY + \alpha_7 \, SIZE + \alpha_8 \, Q + \alpha_9 \, CASH + \varepsilon.$

– *(BLOCK): Major shareholder (blockholder) ownership.*
– *(INST): Institutional ownership.*

- *INSIDER: Ratio of non-executive board members.*
- *BRD-INDT: Management ownership.*
- *B-SIZE: Board size.*
- *DUALITY: CEO duality.*
- *CASH: Liquidity.*
- *Size: Firm size.*
- *Q: Tobin's q ratio.*

Investment: Investment was considered total cash paid to acquire fixed, intangible, or other non-current assets at the beginning of the period. [10], [25]–[27] used the above model to measure investment.

Fig.1. Theoretical research model.

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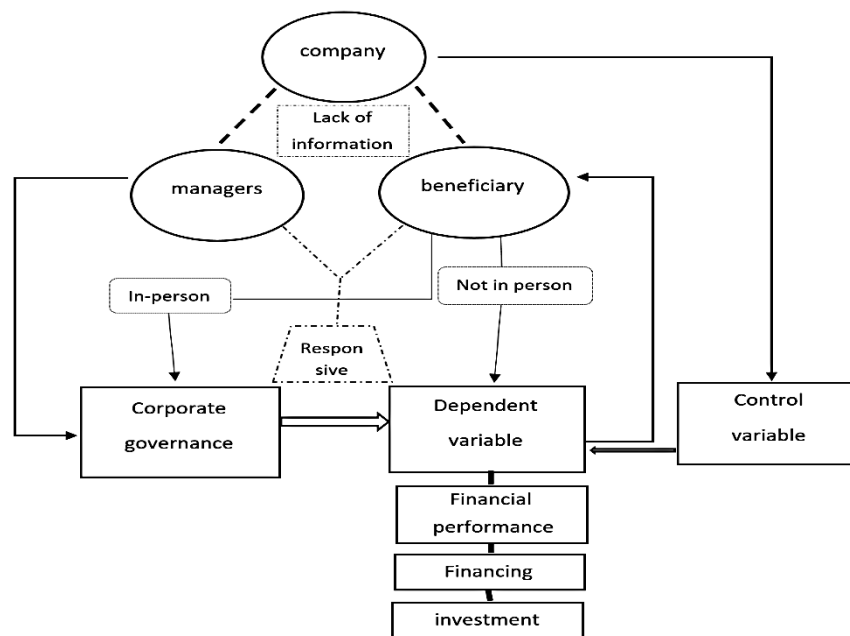
The following model was utilized to test the hypothesis associated with the effects of corporate governance mechanisms on corporate performance:

$$\text{TOBIN's q ratio} = \beta_0 + \beta_1 \, G\_index + \beta_2 SIZE + \beta_3 lEV + \beta_4 AGE + \varepsilon.$$

- *G-index: Corporate governance index.*
- *Lev: Financial leverage.*
- *Size: Firm size.*
- *Age: Firm age.*

Finally, the following model was employed to test the hypothesis associated with the effect of corporate governance mechanisms on financing methods:

$$\text{Financing} = \alpha_0 + \alpha_1 \, INSIDER + \alpha_2 \, INST + \alpha_3 \, BLOCK + \alpha_4 \, B\text{-}SIZE + \alpha_5 \, BRD\text{-}INDT + \alpha_6 \, DUALITY + \alpha_7 \, SIZE + \alpha_8 \, ROE + \alpha_9 \, CASH + \alpha_{10} \, ROA \, \varepsilon.$$

- *Size: Firm size.*
- *CASH: Liquidity.*

– *ROE: Return On Equity.*

– *ROA.*

2.3 | Research Variables

The independent, dependent, and control research variables are described in the following sections.

2.3.1 | Independent variables

Corporate Governance: Corporate governance is defined as a system of controlling and directing companies [28]. In addition, according to Financial Times in 1999, in a limited scope, corporate governance explains the relationship of a firm with its shareholders, while in a broad scope it describes the relationship of a firm with society. The following six criteria were used to assess corporate governance.
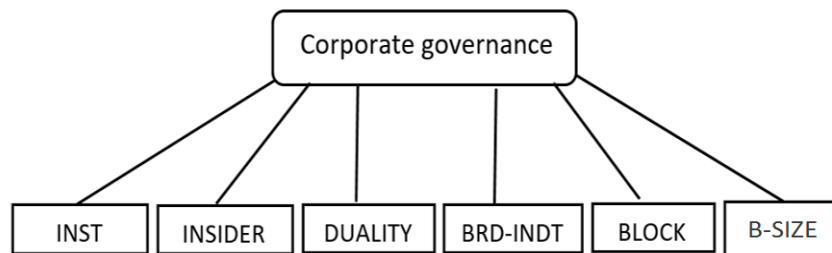

Fig. 2. Corporate governance model.

Block ownership describes conditions under which shares are distributed among shareholders and firms. The smaller the number of stakeholders is, the more concentrated the ownership will be, and the easier it will be for people to express their ideas [29].

Non-executive board members: The board selects a person or persons among its members or outside entities and determines their responsibilities and duties. These board members manage the agency, in other words, they have executive responsibilities. These people are called "executive board member members." Other board members have non-executive responsibilities and do not participate in agency activities; they are called "non-executive board members."

Institutional ownership: Depending on their ownership, some owners have effective control over their shares; therefore, the ownership structure is among the most essential components of corporate governance [30]. An institutional investor is a person or institution (e.g., public and private bank, pension fund, insurance company, social security organization, investment fund, foundation, or institution) that purchases and sells many securities [31]. According to Rubin [32], the total number of shares held by banks, insurance companies, holdings, investment companies, pension funds, financing companies, and investment funds were converted into percentage or dividend.

Management ownership: Using legal authority, the board of directors controls the management team by hiring, dismissing, and punishing managers at different levels. The board's primary purpose is to protect the interests of the shareholders. The board sets and approves corporate goals and plans and assesses policies managers adopt to achieve these goals. Management ownership can be defined in several ways: 1) family board membership, 2) family members' ownership percentage, and 3) significant control or influence of family members on the company [33]. argues that management ownership represents the percentage of shares held by board members.

Board Size: The optimal number of board members should be determined to fulfill relevant tasks and responsibilities [34]. In addition, it is very difficult for boards with many members to reach a consensus in management decisions [35]. The size of a firm is associated with the number of its board members. Board

size specifies the number of board members [24]. Information on board size is published in the financial statements of companies.

CEO duality: According to [36], CEO duality refers to a situation in which the chairman of the board also holds the CEO position.

2.3.2 | Dependent variables

Investment: Investment is the process of buying an asset or item with the hope of selling it at a higher price in the future. In economics, investment means purchasing goods that are not used today but will be needed in the future. In financing, a person buys some assets (such as stocks) and predicts (hopes) that they will rise in price in the future [27].

Corporate performance: Corporate performance is a composite assessment of how well an organization implements its most important parameters, including financial performance, market, and shareholders.

Financing: Companies must anticipate financing sources before investing in new projects. Financing affects dividends in different ways. Therefore, several financing methods (e.g. receiving loans, using internal resources, etc.) are often employed by different companies.
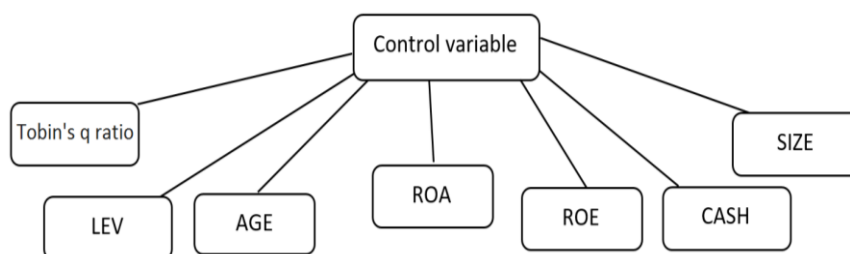
2.3.3 | Control variables

Fig. 2. Control variable model.

Firm size: A larger firm size indicates greater competitive advantage because larger companies invest more in their production and marketing activities and, therefore, get a larger share of the market. The size of a firm is equal to the natural logarithm of all its assets. Information on firm size is published in the financial statements of companies.

Liquidity: Total liquidity is calculated by adding short-term liquidity to long-term investment. Liquidity is defined as the availability of cash or cash equivalents to meet short-term operational needs. In other words, liquidity describes the number of assets that are available to pay debts on time. Obviously, cash is the most liquid asset.

Tobin's q ratio: Tobin's q ratio is defined as a firm's market value divided by its assets' replacement value. This ratio is often used to measure management performance. Researchers believe that poor management performance increases agency costs; therefore, a low q ratio indicates low management and agency performance.

Financial leverage: The ability of a firm to find suitable financial resources is very important for its survival, growth, and progress. Management should try to maximize shareholder wealth when selecting a financing method. Considering the effects of financing resources on stock returns and corporate risks, management must select resources that minimize financing costs. Capital structure is a combination of debt and equity paid by companies for their long-term financial assets. The primary purpose of capital structure decisions is to maximize the market value of a company by providing a proper combination of long-term resources. This combination called the optimal capital structure, minimizes the average cost of capital.

Firm age: The age of a firm is a standard criterion of firm reputation in capital structure models. According to [37], firm age has a positive relationship with long-term debts and a negative relationship with short-term debts; however, [38] state that firm age is negatively correlated with long-term and short-term debts. The age of a firm can be considered as the time interval between the initial establishment of the firm and the current time (in years).

ROA: ROA is calculated by dividing total assets by net earnings. These items are derived from corporate balance sheets.

Return on Equity (ROE): ROE is the ratio of net earnings to shareholder equity. ROE is an index variable equal to 1 if explicitly mentioned as a performance measure in option trading plans with specific performance. Otherwise, it is considered as 0.
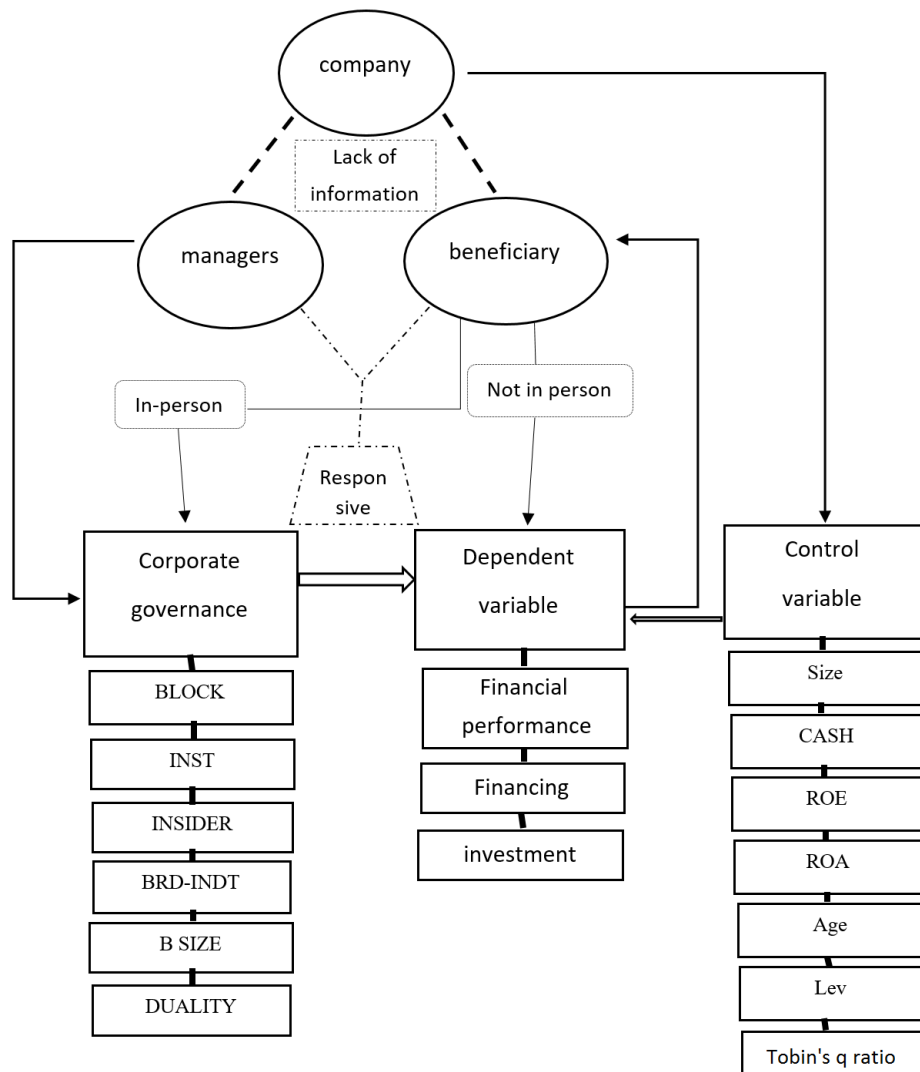

Fig. 3. Final research model.

2.4 | Population and Sample

As shown in the following table, systematic random sampling was used to select the sample (184 companies) among all companies listed in Tehran Stock Exchange from March 21, 2012 to March 21, 2019[1].

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[1] https://www.seo.ir/

Table 2. Companies operating from 2011-2018.

No.	Description	Number
1	Number of companies listed in Tehran Stock Exchange until the end of 2018.	327
2	Companies that their financial year does not end on March 20th (removed from the list).	-56
3	Companies that have changed their financial year over this period (removed from the list).	-37
4	Investment companies, financial intermediaries, holdings, banks, insurance companies, and financial leasing companies (removed from the list).	-26
5	Companies that have been (temporarily/permanently) delisted from the stock exchange (removed from the list).	-24
	The remaining companies	184

2.5 | Testing Research Hypotheses

In this study, the data were collected from the financial statements and notes published by the studied companies, and necessary market information were obtained from Rahavard Novin Software and by visiting the library of Tehran Stock Exchange. Multiple regression analysis as well as correlation, Durbin-Watson, F-Limer, and Hausman tests were employed to test the hypotheses.

2.5.1 | Regression analysis

Regression analysis is a statistical technique to examine and model the relationship between variables. To perform a regression analysis, the analyst needs first to assume there is a relationship between the two variables. In fact, they assume a linear relationship between the two variables and collect quantitative information from two variables, plotting the data on a two-dimensional graph. The regression analysis examines the dependence of a variable (dependent variable) on one or more independent variables (explanatory variable). That is, the second-type variable is determined by estimating or predicting the mean or average values of the first-type variable. Regression analysis is a method of studying the contributions of one or more independent variables in order to predict a dependent variable [39].

4 | Evaluation

Descriptive statistics

Data analysis is a multi-stage process in which data collected in different ways are summarized, categorized, and finally processed to provide a variety of analyses and relationships between data to test the hypotheses. Data are refined conceptually and empirically in this process, and various statistical techniques play a significant role in deduction and generalization. Therefore, based on the materials presented and the hypotheses, in this section, the descriptive statistics are first described, and then, research hypotheses were tested using multiple regression in EViews 10. The test significance level for all hypothesis tests was $\alpha = 0.05$. Based on the sample selection criteria, 65 active companies listed on the Tehran Stock Exchange from 2009 to 2017 were selected. *Table 3* presents the concepts of descriptive statistics of variables, including mean, median, minimum observations, maximum observations, and standard deviations. Means are the main parameter of central tendency, which represents the equilibrium point and distribution center, and it is a good indicator of data centrality. Standard deviation is one of the most important parameters of dispersion and a criterion for the extent of the diffusion of observations from the mean.

Table 3. Descriptive statistics of variables.

Symbol	Mean	Median	Maximum	Minimum	Standard Deviation	Skewness	Kurtosis
BLOCK	0.207	0.094	1.000	0.0003	0.15	1.352	3.811
INST	6.473	6.401	9.606	2.944	0.62	0.503	3.866
INSIDER	0.131	0.091	1.130	0.0002	0.049	2.569	14.28
BRD-INDT	13.73	13.62	18.53	9.949	0.28	0.625	4.266
B SIZE	0.171	0.044	0.493	0.000	0.50	2.372	9.134
DUALITY	0.181	0.163	0.575	0.248	1.93	0.573	3.797
CASH	0.244	0.233	0.677	0.0001	3.33	0.776	3.688
SIZE	0.245	0.234	0.677	0.0001	0.19	0.795	0.719
Q	1.961	1.300	6.561	1.345	0.46	0.748	1.456
G-index	0.596	0.609	1.127	0.452	0.15	0.651	2.768
Lev	0.621	0.572	0.90	0.021	0.33	1.231	0.987
Age	0.073	0.069	0.102	0.034	0.36	0.156	2.457
CASH	7.113	6.654	8.346	3.690	0.43	0.432	3.345
ROE	0.581	0.359	1.128	0.213	0.45	0.991	8.987
ROA	14.970	13.825	15.768	10.876	0.30	0.752	2.346

The descriptive statistics table shows that ROA had the highest mean with 14.970. Furthermore, the lowest ROA was 0.131, obtained from board members. The highest standard deviation came from liquidity with 3.33. Board members also resulted in the highest skewness (2.569) and the highest kurtosis (14.28).

Durability test of research variables

It is necessary to test all the estimation variables before a model is estimated because the non-durability of the variables can cause the false regression of both time series data and panel data. In these tests, the null hypothesis is based on non-durability, whereas the opposite hypothesis is based on the durability of variables.

Table 4. Durability results of variables.

Variables	Levene, Lin and Chu Statistics	Probability	Result
Blockholder ownership	-10.7125	0.0000	Surface durability
Institutional ownership	-3.8319	0.0000	Surface durability
Board members	-4.2691	0.0000	Surface durability
Management ownership	-4.9746	0.0000	Surface durability
Board size	-14.5033	0.0000	Surface durability
Duality of the chairmen of board	-10.1878	0.0000	Surface durability
Liquidity	-14.8358	0.0000	Surface durability
Corporate size	-7.3124	0.0000	Surface durability
Tobin's Q	-9.7456	0.0000	Surface durability
Corporate management list	-8.651	0.0000	Surface durability
Leverage	-23.89	0.0000	Surface durability
Corporate durability	-15.237	0.0000	Surface durability
Liquidity	-11.289	0.0000	Surface durability
Stock returns	-11.614	0.0000	Surface durability
Asset return	-14.266	0.0000	Surface durability

If the significance level of the durability test is lower than 0.05%, it indicates the durability of a variable. Moreover, in order to have a durable variable, the absolute value of the corresponding test statistic must be greater than 2, a fact that is backed by the above table and the significance level of the corresponding test statistic. Regression tests can be conducted to test hypotheses considering the durability of variables.

Panel data type testing

The research regression model was estimated using panel data. Considering the use of synthetic data to select panel or pooled data in model estimation, the F-Limer test should be employed if the F-statistic is greater than 0.05. Otherwise, the panel data method is used. The, the Haussmann test is conducted to determine the model type (fixed and random effects). If the Haussmann test significance level is lower than 0.05, the random effects method is incompatible. To avoid this problem, it is necessary to utilize the fixed effects method. Otherwise, random effects are used. The following table shows the results of these tests.

Table 5. Durability results of variables.

Model	F-Limer Test			Haussmann Test		
1	Statistics	Probability	Result	Statistics	Probability	Result
2	9.399	0.000	Panel	13.194	0.010	Fixed effects
3	19.506	0.000	Panel	35.925	0.000	Fixed effects
4	9.797	0.000	Panel	10.215	0.036	Fixed effects
5	11.877	0.000	Panel	12.451	0.067	Fixed effects
6	5.505	0.000	Panel	23.018	0.001	Fixed effects
7	4.851	0.000	Panel	12.342	0.015	Fixed effects
8	3.066	0.000	Panel	58.992	0.000	Fixed effects
9	5.154	0.000	Panel	31.345	0.040	Fixed effects
10	6.678	0.000	Panel	16.123	0.001	Fixed effects
11	10.768	0.000	Panel	25.567	0.045	Fixed effects
12	4.124	0.000	Panel	30.768	0.024	Fixed effects

Statistical hypothesis testing

I. The first main hypothesis test: The regression model for testing the first main hypothesis is as follows:

INVESTMENT = $\alpha 0$ +$\alpha 1$ INSIDER+$\alpha 2$ INST+$\alpha 3$ BLOCK+$\alpha 4$ BOARE-SIZE+$\alpha 5$ BRD-INDT+

$\alpha 6$ DUALITY+$\alpha 7$ SIZE+$\alpha 8$ Q +$\alpha 9$ CASH+ ε.

Table 6. Results of the first main hypothesis test.

Variables	Coefficients	Standard Deviation	T-Statistics	Probability
Institutional ownership	1.98556	0.39978	4.34657	0.000
Management ownership	0.35461	0.02744	4.60215	0.000
Blockholder ownership	0.23431	0.04734	3.31246	0.000
Board size	4.456780	0.43212	5.67898	0.000000
Non-executive members	1.23057	1.657441	7.65450	0.000
Duality of the chairmen of board	2.23454	0.33461	2.08223	0.001
Size	1.54678	3.31076	5.50023	0.000
Liquidity	0.98123	1.42098	2.35698	0.012
C	1.12356	0.67856	2.67852	0.000
Adjusted coefficient of determination 0.913		Fisher statistics 81.214		
Durbin-Watson test 2.128		Probability of Fisher statistics 0.000		
Dependent variable of investment				

Table 6 shows that the coefficient of institutional ownership is 1.98556. Its probability is 0.000, which indicates a positive and significant relationship between this variable and investment. The results also show that investment has positive and significant relationships with management ownership, block holder ownership, size of the board, non-executive members, and the duality of the chairmen of the board. In addition, control variables such as corporate size and liquidity have positive and significant relationships with investment.

Reported at 2.128, the Durbin-Watson statistic test was employed to check the serial autocorrelation. Since the Durbin-Watson statistic ranges from 1.5 to 2.5, there is no serial autocorrelation between remainders. The adjusted coefficient of determination was 0.913, indicating nearly 91% of the investment fluctuations by the independent variables in the explanatory model. In addition, given the probability of the Fisher model (0.000), it is safe to state that 99% of the model is significant and highly reliable.

II. The second main hypothesis test: The regression model for testing the second main hypothesis is as follows:

QTOBIN = β_0 + β_1 G_index + β_2 SIZE + β_3 lEV + β_4 AGE + ε.

Table 7. Results of the second main hypothesis test.

Variables	Coefficients	Standard Deviation	T-statistics	Probability
Institutional ownership	3.14956	2.45323	5.45768	0.000
Management ownership	1.12272	10.356	12.10534	0.00029
Board ownership	0.149978	0.34567	8.50423	0.000
Board size	3.07545	2.76457	2.98675	0.000
Non-executive members	2.07545	2.23465	9.45678	0.000
Duality of CEO duties	0.18645	1.65341	9.71756	0.000
Corporate management list	1.67845	0.34567	4.90876	0.000
Leverage	-2.54687	0.12343	-1.90867	0.000
Corporate durability	2.34565	0.12365	4.56876	0.000
Tobin's Q	-3.12376	0.987056	-3.45634	0.0200
C	1.45678	0.456678	4.052567	0.000
Adjusted coefficient of determination 0.735		Fisher statistics 6.871		
Durbin-Watson test 2.321		Probability of Fisher statistics 0.000		
Dependent variable of corporate performance				

Table 7 shows that the institutional ownership coefficient is 3.14956. Its probability is 0.000, showing a positive and significant relationship between this variable and corporate performance. The results also show that there are positive and significant relationships among management ownership, board ownership, board size, non-executive members, CEO duality, and corporate performance. The corporate management list and corporate durability have a positive and significant relationship. There is also a negative and significant relationship between the financial leverage and Tobin's Q. Reported at 2.321, the Durbin-Watson statistic was employed to test the serial autocorrelation. Since the Durbin-Watson statistics ranges from 1.5 to 2.5, there is no serial autocorrelation between remainders. The adjusted coefficient of determination was 0.735, showing that nearly 73% of the corporate performance fluctuations were explained by the independent variables in the explanatory model. Given the probability of the Fisher model (0.000), it is fair to state that 99% of the model is significant and highly reliable.

III.   The third main hypothesis test: The regression model for testing the third main hypothesis is as follows:

Financing= α_0 + α_1 INSIDER+ α_2 INST+ α_3 BLOCK+ α_4 BOARE-SIZE+ α_5 BRD-INDT+

α_6 DUALITY+ α_7 SIZE+ α_8 ROE+ α_9 CASH+ α_{10}ROA ε.

Table 8. Results of the third main hypothesis test.

Variables	Coefficients	Standard Deviation	T-statistics	Probability
Institutional ownership	3.34657	2.45769	8.12343	0.00010
Management ownership	-1.34657	1.90823	-4.45341	0.00000
Blockholder ownership	-1.04334	2.45667	-7.65789	0.123
Board size	2.43657	0.577441	7.56560	0.00001
Non-executive members ratio	0.53334	0.05667	5.45789	0.000
Duality of CEO duties	1.34534	0.07667	7.76789	0.00000
Corporate size	2.23454	0.00234	1.54678	0.00000
Stock returns	2.12343	0.023441	5.23541	0.00000
Asset returns	2.21345	0.01267	3.12436	0.00000
Liquidity	-2.43561	0.01243	-3.87090	0.00001
C	0.43122	1.43125	6.34657	0.00001
Adjusted coefficient of determination 0.751		Fisher statistics 6.654		
Durbin-Watson test 1.789		Probability of Fisher statistics 0.000		
Dependent variable of financing methods				

According to *Table 8*, the institutional ownership coefficient is 3.34657. Its probability is 0.000, indicating a positive and significant relationship between this variable and the financing methods. The results also show that financing methods had negative and significant relationships with blockholder and management

ownership. At the same time, financing methods had positive and significant relationships with board size, non-executive ratio, and duality of CEO duties. Liquidity had an inverse significant relationship with financing methods; other control variables had positive and significant relationships. Reported at 1.789, the Durbin-Watson statistic was employed to test the serial autocorrelation. Since the Durbin-Watson statistics range from 1.5 to 2.5, there is no serial autocorrelation between remainders. The adjusted coefficient of determination is 0.751, indicating that the independent variables in the explanatory model explained nearly 75% of the financing method fluctuations. In addition, given the probability of the Fisher Model (0.000), it is safe to state that 99% of the model is significant and highly reliable.

5 | Conclusion

This study aimed to design a model for analyzing the effects of corporate governance mechanisms on investment management, financing methods, and corporate performance. The results of the first and second main hypotheses revealed significant relationships between all components of corporate governance (including institutional ownership, management ownership, board ownership, board size, ratio of non-executive board members, and CEO duality) and investment and corporate performance variables. The results are relatively consistent with the findings of Andreou et al. [9] and Karim and Faiz [19]. Based on the results of the third main hypothesis, significant relationships were found between most components of corporate governance (including institutional ownership, board ownership, board size, ratio of non-executive board members, and CEO duality) and financing methods. In addition, management ownership had an inverse relationship with the variable of financing methods, while no significant relationship was found between institutional ownership in the studied companies and their financing methods.

Therefore, relevant authorities are recommended to prepare the foundations for the active presence of institutional investors in the capital market. At the same time, investors are advised to pay special attention to companies' cash balance and board composition while investing in large corporations and to select companies with a high percentage of member independence. Researchers should consider shareholder and board composition when using corporate financial statements. The present results were obtained by analyzing the studied companies; therefore, industry-specific analyses may yield different results. Inflation also reduced the accuracy of the data obtained from the financial statements of the studied companies.

Data Availability

The datasets used and analyzed during the current study are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare no conflict of interest.

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