The Role of Ownership Structure and Board Characteristics in Stock Market Liquidity: Evidence from the Tehran Stock Exchange

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Abstract: The purpose of this study was to investigate the role of ownership structure and board characteristics in stock market liquidity among firms listed on the Tehran Stock Exchange during the period 2014–2024. This study was an applied quantitative research with a descriptive-correlational design. The statistical population consisted of all companies listed on the Tehran Stock Exchange from 2014 to 2024. Using systematic screening criteria, 109 companies were selected as the final sample, resulting in 1,199 firm-year observations. Stock market liquidity was measured using the share turnover ratio. Ownership structure was operationalized through institutional ownership, managerial ownership, ownership concentration, and government ownership. Board characteristics included board size, board independence, and board financial knowledge. Firm size, financial leverage, and return on assets were incorporated as control variables. Data were collected from audited financial statements, annual reports, the Codal system, and Rahavard Novin databases. Descriptive statistics, panel unit root tests, F-Limer tests, Hausman tests, and panel data regression models were employed using EViews software to test the research hypotheses. The results indicated that institutional ownership had a significant negative effect on stock market liquidity ($\beta = -0.0218$, $p < 0.001$), while managerial ownership had a significant positive effect ($\beta = 0.0026$, $p = 0.0045$). Ownership concentration was negatively associated with stock market liquidity ($\beta = -0.0041$, $p = 0.0169$), whereas government ownership showed no statistically significant relationship ($p = 0.6094$). Regarding board characteristics, board size exhibited a significant negative effect on stock market liquidity ($\beta = -0.1438$, $p = 0.0272$), and board financial knowledge also demonstrated a significant negative relationship ($\beta = -0.0872$, $p < 0.001$). Board independence did not significantly affect stock market liquidity ($p = 0.5068$). The ownership structure model explained 67.1% of the variation in stock market liquidity, while the board characteristics model explained 31.4%. The findings demonstrate that ownership structure and board characteristics play important roles in shaping stock market liquidity; however, ownership-related governance mechanisms exert a stronger influence than board-related mechanisms. Institutional ownership and ownership concentration reduce liquidity, whereas managerial ownership enhances it. Among board characteristics, larger boards and higher levels of board financial expertise are associated with lower liquidity, while board independence appears unrelated to liquidity.

Keywords: Ownership Structure, Ownership Concentration, Board Characteristics, Board Financial Knowledge, Stock Market Liquidity

1. Introduction

Stock market liquidity is widely recognized as one of the most important indicators of capital market efficiency and development. A liquid market enables investors to buy and sell securities rapidly, at low transaction costs, and

with minimal price impact. High liquidity enhances investor confidence, facilitates capital allocation, lowers the cost of capital, and contributes to economic growth. In contrast, illiquid markets discourage investment, increase transaction costs, and create barriers to efficient resource allocation. Consequently, understanding the determinants of stock market liquidity has become a major concern for researchers, policymakers, regulators, and market participants worldwide [1, 2].

Liquidity reflects the ability of market participants to convert securities into cash without experiencing significant losses in value. The concept extends beyond trading volume and incorporates dimensions such as trading speed, transaction cost, market depth, and price continuity. In developed and emerging markets alike, stock liquidity is considered a critical factor influencing investment decisions, firm valuation, market stability, and financial system resilience. Because investors often prefer assets that can be traded easily, firms whose stocks exhibit higher liquidity generally enjoy greater market attractiveness and lower financing costs. Consequently, identifying the corporate factors that contribute to liquidity has become a central theme in corporate finance and governance research [1, 3, 4].

Among the organizational factors influencing stock liquidity, corporate governance mechanisms have attracted substantial scholarly attention. Corporate governance refers to the structures, processes, and relationships through which corporations are directed and controlled. Effective governance mechanisms reduce agency conflicts, improve transparency, strengthen accountability, and enhance investor protection. Through these channels, governance quality can significantly influence market perceptions and trading behavior. Strong governance systems reduce information asymmetry between insiders and outside investors, thereby increasing investor confidence and improving stock market liquidity [5-7].

The theoretical foundation for examining the relationship between corporate governance and stock liquidity originates primarily from agency theory. According to agency theory, the separation of ownership and control creates conflicts of interest between managers and shareholders. Managers may pursue personal objectives that are inconsistent with shareholders' wealth maximization goals, resulting in agency costs and reduced firm value. Corporate governance mechanisms are designed to mitigate these conflicts by monitoring managerial behavior and aligning managerial interests with those of shareholders. Effective governance therefore reduces uncertainty and information asymmetry, both of which are important determinants of stock liquidity [8-10].

Ownership structure constitutes one of the most important internal governance mechanisms affecting firm behavior and market outcomes. Ownership structure refers to the distribution of equity among different categories of shareholders and reflects the degree of control exercised within a corporation. Different ownership structures create different incentives for monitoring management, influencing strategic decisions, controlling information disclosure, and shaping corporate performance. Consequently, ownership structure has attracted considerable attention in studies examining firm performance, financial reporting quality, risk-taking behavior, and stock market outcomes [11-13].

Institutional ownership represents one of the most influential ownership categories in modern capital markets. Institutional investors generally possess superior analytical capabilities, greater access to information, and stronger monitoring incentives compared to individual investors. Their presence may improve governance quality and reduce information asymmetry. However, institutional investors may also pursue private benefits or adopt long-term investment horizons that reduce trading activity and market liquidity. Consequently, the relationship between institutional ownership and stock liquidity remains theoretically ambiguous and empirically unresolved [4, 8, 14].

Managerial ownership constitutes another important dimension of ownership structure. When managers own a substantial proportion of company shares, their interests become more closely aligned with those of shareholders. This alignment may reduce agency conflicts, improve decision quality, and enhance transparency. At the same time, excessive managerial ownership may entrench managers and weaken external monitoring mechanisms. Therefore, managerial ownership can influence market liquidity through multiple channels, including information disclosure, investor confidence, and corporate decision-making quality [8, 11, 12].

Ownership concentration has also emerged as a critical governance variable in both developed and emerging economies. Concentrated ownership may facilitate effective monitoring by large shareholders, thereby reducing managerial opportunism and improving corporate governance. However, concentrated ownership may simultaneously create opportunities for dominant shareholders to extract private benefits at the expense of minority investors. Such behavior can increase information asymmetry and discourage market participation. Previous studies have documented both positive and negative consequences of ownership concentration, indicating that its effect on stock liquidity may depend on institutional and market-specific conditions [15-17].

Government ownership represents another distinctive ownership form, particularly in emerging economies. State-owned enterprises often operate under objectives that differ from those of privately owned firms. While government ownership may provide stability, access to resources, and political support, it may also introduce inefficiencies, agency problems, and political interference. Recent evidence suggests that the effects of state ownership are context-dependent and may vary across institutional environments and governance structures [2, 18, 19].

In addition to ownership structure, board characteristics constitute a fundamental pillar of corporate governance systems. The board of directors plays a central role in monitoring management, approving strategic decisions, protecting shareholder interests, and ensuring accountability. Through these responsibilities, boards influence information quality, corporate transparency, and investor perceptions. Consequently, board characteristics have become important explanatory variables in studies examining financial performance, governance effectiveness, and market outcomes [5, 20, 21].

Board size is among the most frequently examined board attributes. Larger boards may provide greater expertise, diversity, and access to external resources. They may also improve monitoring capacity and strategic decision-making. Conversely, excessively large boards may suffer from coordination problems, communication inefficiencies, and slower decision processes. These competing arguments suggest that board size can affect stock liquidity through its influence on governance quality and information disclosure practices [3, 6, 8].

Board independence has received considerable attention as a mechanism for strengthening oversight and protecting minority shareholders. Independent directors are expected to provide objective judgment, challenge managerial decisions, and reduce agency conflicts. By improving transparency and accountability, independent boards may reduce information asymmetry and increase investor confidence, thereby enhancing stock liquidity. Nevertheless, the effectiveness of independent directors depends on institutional context, legal protections, and actual independence from management influence [3, 10, 22].

Financial expertise among board members represents another governance characteristic that may affect stock market liquidity. Directors possessing financial and accounting expertise are generally better equipped to evaluate complex financial information, oversee reporting processes, and identify governance weaknesses. Financially knowledgeable boards may improve disclosure quality and reduce uncertainty among investors. However,

empirical findings concerning the effects of board expertise remain mixed, particularly in emerging markets where governance practices continue to evolve [20, 23, 24].

Recent international research has increasingly emphasized the role of governance mechanisms in shaping stock market outcomes. Studies conducted in Pakistan, China, Nigeria, Indonesia, Egypt, and other emerging economies have generally demonstrated that governance quality influences market liquidity, financial performance, risk management, and investor behavior. However, the magnitude and direction of these relationships vary considerably across countries due to differences in institutional quality, legal frameworks, ownership patterns, and market development levels [3, 4, 13, 14].

Evidence from emerging markets suggests that institutional environments play a crucial role in determining the effectiveness of governance mechanisms. Corporate governance practices that improve liquidity in one market may produce weaker or even opposite effects in another market. Such variation highlights the importance of examining governance–liquidity relationships within specific national contexts. Institutional quality, investor protection, market transparency, and regulatory enforcement may significantly influence how ownership structures and board characteristics affect stock trading behavior [14, 25, 26].

The Tehran Stock Exchange provides an important setting for investigating these relationships. As the largest securities market in Iran, it operates within a unique institutional environment characterized by concentrated ownership structures, substantial state involvement, evolving governance regulations, and periodic economic sanctions. These conditions create distinctive governance challenges and may alter the manner in which ownership structures and board characteristics influence stock liquidity. Understanding these relationships is therefore important for investors, regulators, policymakers, and corporate decision-makers seeking to enhance market efficiency and governance effectiveness [20, 27, 28].

Although previous Iranian studies have examined selected aspects of ownership structure, board characteristics, firm performance, and liquidity, several important limitations remain. Existing studies have frequently focused on specific governance variables, limited time periods, or particular dimensions of ownership and board structure. Furthermore, substantial changes have occurred in capital markets, governance practices, and regulatory frameworks during the last decade. Consequently, there is a need for updated evidence that simultaneously examines multiple dimensions of ownership structure and board characteristics within a comprehensive analytical framework covering a recent and extended period [11, 15, 16, 27, 29].

Moreover, contemporary governance literature increasingly emphasizes the interconnected roles of shareholders and boards in shaping corporate outcomes. Ownership structure influences board composition and governance dynamics, while board characteristics affect how ownership interests are represented and protected. Examining these mechanisms together provides a more comprehensive understanding of corporate governance effectiveness and its implications for stock market liquidity. Such an integrated perspective is particularly valuable in emerging markets, where governance arrangements are often characterized by concentrated ownership, dominant shareholders, and evolving regulatory frameworks [8, 9, 26, 30, 31].

Therefore, the aim of this study is to investigate the role of ownership structure and board characteristics in stock market liquidity among firms listed on the Tehran Stock Exchange during the period 2014–2024.

2. Methodology

The present study is an applied quantitative study in terms of purpose and a descriptive-correlational study in terms of nature and method. The study examines the role of ownership structure and board characteristics in stock

market liquidity among firms listed on the Tehran Stock Exchange. Since the objective of the research is to investigate the effect of several firm-level governance variables on stock liquidity over time, a panel data design was used. The statistical population consisted of all companies listed on the Tehran Stock Exchange during the period from 2014 to 2024. The sample was selected through a systematic screening method. Companies were included if they were listed before the beginning of 2014, remained active on the Tehran Stock Exchange until the end of 2024, had a fiscal year ending in March, did not change their fiscal year or main business activity during the study period, had no trading suspension longer than three months, and had complete financial, ownership, board, and trading data available. Banks, insurance companies, leasing firms, investment companies, holding companies, and other financial intermediaries were excluded because of their different reporting structures and regulatory requirements. After applying these criteria, the final sample consisted of 109 companies, producing 1,199 firm-year observations over the eleven-year period from 2014 to 2024.

The data required for the study were collected using documentary and archival methods. The theoretical foundations were obtained from books, scientific articles, and prior studies in the fields of corporate governance, ownership structure, board characteristics, and stock market liquidity. The empirical data were extracted from audited financial statements, explanatory notes, annual reports, board reports, shareholders' composition reports, and official market databases of the Tehran Stock Exchange, Codal system, and Rahavard Novin software. The collected data were first organized in Microsoft Excel and then transferred to EViews for statistical analysis.

Stock market liquidity was considered the dependent variable of the study and was measured using the share turnover ratio. This index shows the extent to which a company's shares are traded during a year and is calculated as follows:

$$SML_{it} = \frac{TS_{it}}{OS_{it}}$$

where SML_{it} denotes stock market liquidity of company i in year t, TS_{it} represents the number of shares traded during the year, and OS_{it} represents the number of outstanding shares.

Ownership structure was measured through institutional ownership, managerial ownership, ownership concentration, and government ownership. Institutional ownership was calculated as the percentage of shares held by institutional shareholders:

$$IO_{it} = \frac{IS_{it}}{OS_{it}}$$

Managerial ownership was calculated as the percentage of shares held by board members and executive managers:

$$MO_{it} = \frac{MS_{it}}{OS_{it}}$$

Ownership concentration was measured as the percentage of shares held by the largest shareholder:

$$CO_{it} = \frac{LS_{it}}{OS_{it}}$$

Government ownership was calculated as the percentage of shares directly or indirectly held by governmental or quasi-governmental entities:

$$GO_{it} = \frac{GS_{it}}{OS_{it}}$$

Board characteristics were measured using board size, board independence, and board financial knowledge. Board size was defined as the total number of board members. Board independence was measured as the number of non-executive board members relative to the total number of board members:

$$BIND_{it} = \frac{NED_{it}}{BS_{it}}$$

Board financial knowledge was measured as the number of board members with academic education or professional expertise in accounting, finance, economics, auditing, or related fields relative to the total number of board members:

$$FKOB_{it} = \frac{FEX_{it}}{BS_{it}}$$

Firm size, financial leverage, and return on assets were used as control variables. Firm size was measured as the natural logarithm of total assets:

$$SIZE_{it} = \ln(TA_{it})$$

Financial leverage was measured as the ratio of total liabilities to total assets:

$$LEV_{it} = \frac{TL_{it}}{TA_{it}}$$

Return on assets was measured as the ratio of net income to total assets:

$$ROA_{it} = \frac{NI_{it}}{TA_{it}}$$

Data analysis was conducted using descriptive statistics, correlation analysis, and panel data regression models. First, descriptive statistics including mean, median, minimum, maximum, and standard deviation were calculated for all variables. Then, the stationarity of the research variables was examined using the Levin, Lin, and Chu panel unit root test to prevent spurious regression. After confirming the stationarity of the variables, the F-Limer test was used to determine whether pooled regression or panel data estimation was more appropriate. If the panel data model was confirmed, the Hausman test was applied to choose between fixed-effects and random-effects models. The assumptions of regression analysis were also examined. Heteroskedasticity was tested using the likelihood ratio test, and serial correlation was examined using the Wooldridge test. When econometric problems were detected, the estimated generalized least squares method was applied to obtain efficient and reliable coefficients.

The first regression model examined the role of ownership structure in stock market liquidity:

$$SML_{it} = \beta_0 + \beta_1 IO_{it} + \beta_2 MO_{it} + \beta_3 CO_{it} + \beta_4 GO_{it} + \beta_5 SIZE_{it} + \beta_6 LEV_{it} + \beta_7 ROA_{it} + \varepsilon_{it}$$

The second regression model examined the role of board characteristics in stock market liquidity:

$$SML_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 BIND_{it} + \beta_3 FKOB_{it} + \beta_4 SIZE_{it} + \beta_5 LEV_{it} + \beta_6 ROA_{it} + \varepsilon_{it}$$

In these models, SMLrepresents stock market liquidity, IOinstitutional ownership, MOmanagerial ownership, COownership concentration, GOgovernment ownership, BSboard size, $BIND$board independence, $FKOB$board financial knowledge, $SIZE$firm size, LEVfinancial leverage, ROAreturn on assets, and $\varepsilon$the error term. All hypotheses were tested at the 5% significance level using EViews software.

3. Findings and Results

The final sample consisted of 109 companies listed on the Tehran Stock Exchange observed over an eleven-year period from 2014 to 2024, resulting in 1,199 firm-year observations. The sample represented a broad range of industries, including manufacturing, petrochemicals, pharmaceuticals, metals and mining, automotive, food products, construction materials, and consumer goods. Among the sampled firms, manufacturing and industrial companies accounted for approximately 37.6% of observations, followed by petrochemical and chemical industries (18.4%), metal and mineral industries (16.1%), pharmaceutical companies (8.5%), food and consumer products (7.9%), automotive firms (5.3%), and other industries (6.2%). The average firm age was 24.37 years, indicating that most sampled companies were mature organizations with established ownership and governance structures. The mean board size across the study period was 5.18 members, while the average proportion of independent directors was 42.6%. Institutional shareholders held approximately 56.8% of outstanding shares on average, reflecting the dominant role of institutional investors in the Iranian capital market.

Table 1. Descriptive Statistics of Research Variables

Variable	Mean	Median	Maximum	Minimum	Standard Deviation
Stock Market Liquidity (SML)	0.593	0.541	5.872	0.002	0.741
Institutional Ownership (IO)	56.821	58.170	98.420	0.000	28.361
Managerial Ownership (MO)	60.477	64.330	98.930	0.000	22.915
Ownership Concentration (CO)	51.294	50.870	96.140	18.720	17.863
Government Ownership (GO)	47.612	41.930	97.550	0.000	29.274
Board Size (BS)	5.180	5.000	9.000	5.000	0.621
Board Independence (BIND)	0.426	0.400	0.800	0.000	0.174
Board Financial Knowledge (FKOB)	0.381	0.333	1.000	0.000	0.228
Firm Size (SIZE)	14.921	14.713	20.511	11.247	1.558
Financial Leverage (LEV)	0.574	0.551	1.921	0.037	0.214
Return on Assets (ROA)	0.137	0.119	0.684	-0.572	0.149

Table 1 presents the descriptive statistics of the study variables. The average stock market liquidity was 0.593, indicating a moderate level of trading activity among listed companies. Institutional ownership exhibited the highest average among ownership dimensions, suggesting that institutional investors continue to dominate the ownership structure of firms listed on the Tehran Stock Exchange. The average managerial ownership exceeded 60%, highlighting the significant involvement of managers and board members in company ownership. Ownership concentration was relatively high, confirming that ownership remains concentrated in the hands of major shareholders. The average board size was slightly above five members, consistent with corporate governance requirements in Iran. Independent directors represented approximately 43% of board membership, while financial experts accounted for approximately 38% of board members. The mean financial leverage ratio of 0.574 indicates that debt financing constitutes a substantial component of firms' capital structures. Furthermore, the average return on assets suggests that the sampled firms maintained positive profitability during the study period.

Table 2. Panel Unit Root Test Results (Levin–Lin–Chu Test)

Variable	LLC Statistic	p-value	Result
SML	-8.721	0.0000	Stationary
IO	-31.485	0.0000	Stationary
MO	-18.772	0.0000	Stationary
CO	-121.906	0.0000	Stationary
GO	-27.534	0.0000	Stationary
BS	-3.441	0.0003	Stationary
BIND	-8.913	0.0000	Stationary
FKOB	-7.468	0.0000	Stationary
SIZE	-9.103	0.0000	Stationary
LEV	-8.427	0.0000	Stationary
ROA	-6.248	0.0000	Stationary

The results of the Levin–Lin–Chu unit root test indicate that all research variables are stationary at the 5% significance level. The probability values for all variables were below 0.05, leading to the rejection of the null hypothesis of a unit root. Consequently, the variables possess stable means and variances over time, and the possibility of spurious regression is substantially reduced. Therefore, the data satisfy the stationarity assumption required for panel data estimation and can be used in subsequent regression analyses.

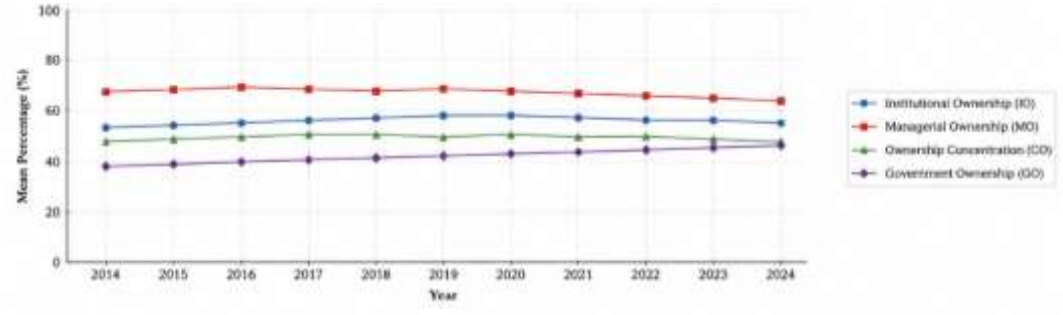

Figure 1. Mean Values of Ownership Structure Components During 2014–2024

The graphical representation of ownership structure components demonstrates that managerial ownership maintained the highest average value throughout the study period, followed by institutional ownership and ownership concentration. Government ownership exhibited the lowest average level among the ownership variables. The figure illustrates the persistence of concentrated ownership structures in the Iranian capital market and highlights the significant role of both institutional and managerial shareholders in corporate governance arrangements.

Table 3. Results of Panel Regression Model 1: Ownership Structure and Stock Market Liquidity

Variables	Coefficient	t-statistic	p-value
Constant	0.487	1.982	0.048
Institutional Ownership (IO)	-0.0218	-10.674	0.0000
Managerial Ownership (MO)	0.0026	2.847	0.0045
Ownership Concentration (CO)	-0.0041	-2.394	0.0169
Government Ownership (GO)	0.0007	0.511	0.6094
Firm Size (SIZE)	0.0943	6.472	0.0000
Financial Leverage (LEV)	-0.0716	-1.438	0.1508
Return on Assets (ROA)	0.6935	7.912	0.0000

Adjusted $R^2 = 0.671$; F-statistic = 25.384; Prob(F-statistic) = 0.0000; Durbin–Watson = 1.941

The results of the first regression model reveal that institutional ownership has a significant negative effect on stock market liquidity ($\beta = -0.0218$, $p < 0.001$). This finding suggests that firms with higher institutional ownership

tend to exhibit lower trading activity and reduced liquidity. Managerial ownership demonstrates a positive and statistically significant relationship with stock market liquidity (β = 0.0026, p = 0.0045), indicating that greater managerial shareholding is associated with enhanced liquidity. Ownership concentration also exerts a significant negative effect on liquidity (β = −0.0041, p = 0.0169), implying that highly concentrated ownership structures may reduce market participation and trading volume. Government ownership does not show a statistically significant relationship with stock market liquidity. Among the control variables, firm size and return on assets have significant positive effects on liquidity, while financial leverage remains insignificant. The adjusted coefficient of determination indicates that approximately 67.1% of the variation in stock market liquidity is explained by the independent variables included in the model.

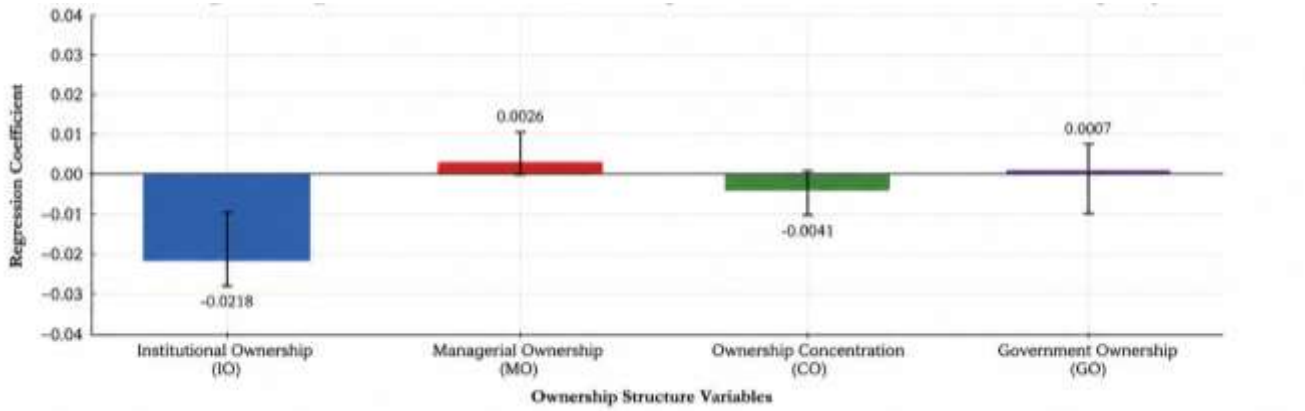

Figure 2. Regression Coefficients of Ownership Structure Variables on Stock Market Liquidity

The figure visually illustrates the magnitude and direction of the estimated coefficients. Institutional ownership and ownership concentration appear on the negative side of the horizontal axis, reflecting their adverse effects on stock market liquidity. In contrast, managerial ownership demonstrates a positive coefficient, while government ownership remains close to zero and statistically insignificant. The graphical presentation confirms the dominant influence of institutional ownership on stock liquidity among all ownership dimensions.

Table 4. Results of Panel Regression Model 2: Board Characteristics and Stock Market Liquidity

Variables	Coefficient	t-statistic	p-value
Constant	2.631	7.315	0.0000
Board Size (BS)	-0.1438	-2.211	0.0272
Board Independence (BIND)	0.0085	0.664	0.5068
Board Financial Knowledge (FKOB)	-0.0872	-4.394	0.0000
Firm Size (SIZE)	-0.0794	-8.746	0.0000
Financial Leverage (LEV)	-0.1821	-2.453	0.0144
Return on Assets (ROA)	-0.7188	-5.908	0.0000

Adjusted R^2 = 0.314; F-statistic = 34.766; Prob(F-statistic) = 0.0000; Durbin–Watson = 1.812

The second regression model examined the influence of board characteristics on stock market liquidity. The findings indicate that board size has a significant negative relationship with stock market liquidity (β = −0.1438, p = 0.0272). This result suggests that larger boards may reduce decision-making efficiency and consequently decrease market liquidity. Board independence does not have a statistically significant impact on liquidity, indicating that the proportion of independent directors alone may not influence trading activity in the Tehran Stock Exchange. Board financial knowledge exhibits a significant negative relationship with liquidity (β = −0.0872, p < 0.001), suggesting that firms with a greater proportion of financially knowledgeable directors tend to experience lower

stock turnover. The model explains approximately 31.4% of the variation in stock market liquidity, indicating moderate explanatory power.

Overall, the findings support the proposition that both ownership structure and board characteristics play important roles in determining stock market liquidity. However, ownership-related variables appear to possess substantially greater explanatory power than board characteristics, as reflected by the higher adjusted coefficient of determination obtained in the first regression model.

4. Discussion and Conclusion

The purpose of this study was to investigate the role of ownership structure and board characteristics in stock market liquidity among firms listed on the Tehran Stock Exchange during the period 2014–2024. The findings revealed that institutional ownership, managerial ownership, and ownership concentration significantly influence stock market liquidity, whereas government ownership does not have a significant effect. Furthermore, among board characteristics, board size and board financial knowledge were found to significantly affect stock market liquidity, while board independence did not demonstrate a statistically significant relationship. Overall, the results indicate that ownership-related governance mechanisms possess greater explanatory power for stock liquidity than board-related governance mechanisms.

One of the most important findings of this study was the significant negative relationship between institutional ownership and stock market liquidity. This result suggests that firms characterized by higher levels of institutional ownership tend to exhibit lower stock liquidity. Although institutional investors are generally considered sophisticated market participants capable of improving monitoring and governance quality, their presence may simultaneously reduce the volume of actively traded shares because institutional investors often adopt long-term investment strategies and maintain substantial ownership positions. Consequently, the proportion of freely tradable shares may decrease, reducing market liquidity. This finding is not fully consistent with studies that report a positive governance role for institutional investors in improving market efficiency and transparency [4, 14]. However, the result may be explained by the unique ownership structure of the Iranian capital market, where institutional ownership is frequently concentrated among governmental, semi-governmental, or affiliated organizations. Such entities often prioritize strategic control and long-term influence rather than active trading. The finding is also consistent with arguments suggesting that ownership structures influence market liquidity through their effects on information asymmetry, shareholder monitoring, and trading incentives [8, 13]. In this context, higher institutional ownership may reduce the availability of shares in the market and limit trading opportunities for minority investors.

The results also demonstrated a significant positive relationship between managerial ownership and stock market liquidity. This finding indicates that increasing managerial shareholdings is associated with higher levels of stock liquidity. From the perspective of agency theory, managerial ownership aligns the interests of managers and shareholders, thereby reducing agency conflicts and increasing managerial commitment to firm value maximization. As managers become shareholders, they are more likely to support transparent reporting practices and strategic decisions that improve investor confidence and encourage trading activity. This interpretation is consistent with the alignment-of-interest hypothesis and with prior studies emphasizing the governance benefits of managerial ownership [8, 11, 12]. Furthermore, managerial ownership may signal confidence in the firm's future prospects, encouraging market participants to engage more actively in trading. Enhanced confidence reduces perceived uncertainty and contributes positively to liquidity. Therefore, the positive effect observed in the present

study supports the view that managerial ownership can function as an effective internal governance mechanism in emerging capital markets.

Another significant finding concerns ownership concentration. The results revealed a negative and statistically significant relationship between ownership concentration and stock market liquidity. This finding suggests that as a larger proportion of company shares becomes concentrated in the hands of major shareholders, market liquidity declines. One explanation is that concentrated ownership reduces the free float available for trading, thereby limiting market depth and transaction volume. Additionally, dominant shareholders may possess superior access to private information, increasing information asymmetry and discouraging participation by minority investors. Such circumstances can reduce market confidence and trading activity. This finding is consistent with previous evidence reported in the Iranian context, where ownership concentration has been associated with adverse market outcomes and reduced liquidity [15, 16, 27]. The result also aligns with studies emphasizing the potential risks associated with controlling shareholders, including expropriation of minority interests and reduced transparency [17, 26]. From a governance perspective, although concentrated ownership may strengthen monitoring, excessive concentration appears to create market frictions that ultimately reduce stock liquidity.

The findings further indicated that government ownership does not exert a statistically significant influence on stock market liquidity. This result suggests that the mere presence of government ownership is insufficient to explain variations in liquidity among listed firms. The absence of a significant relationship may reflect the heterogeneity of state-owned enterprises and the coexistence of both efficient and inefficient governance practices within government-controlled organizations. Contemporary research increasingly recognizes that state ownership does not necessarily produce uniformly positive or negative outcomes; rather, its effects depend on institutional environments, governance structures, and regulatory frameworks [2, 18]. In the context of the Tehran Stock Exchange, government-owned firms may differ substantially regarding transparency, managerial autonomy, and strategic objectives. Consequently, the overall effect of government ownership on stock liquidity may become statistically indistinguishable. This finding supports the argument that ownership type alone is insufficient to determine governance effectiveness and market outcomes.

With regard to board characteristics, the study revealed a significant negative relationship between board size and stock market liquidity. This finding indicates that larger boards are associated with lower levels of liquidity. Although larger boards may provide greater expertise and diversity, they may also experience coordination difficulties, communication inefficiencies, and slower decision-making processes. Such inefficiencies can negatively affect governance quality, information disclosure, and strategic responsiveness, ultimately reducing investor confidence and market activity. This finding is consistent with arguments suggesting that excessively large boards may become less effective monitoring mechanisms [3, 8]. Moreover, larger boards may increase organizational complexity and reduce accountability, leading to slower responses to market developments. Consequently, investors may perceive firms with larger boards as less agile and less transparent, contributing to lower stock liquidity.

The analysis also demonstrated that board independence does not significantly affect stock market liquidity. This finding suggests that the proportion of independent directors alone may not be sufficient to influence trading behavior and market activity. Although governance theory generally argues that independent directors enhance oversight and reduce agency problems, their effectiveness depends on actual independence, expertise, authority, and institutional support. In emerging markets, formal board independence may not necessarily translate into substantive monitoring effectiveness. Independent directors may face informational disadvantages, limited

authority, or cultural constraints that reduce their influence on governance outcomes. Therefore, the absence of a significant relationship in this study is understandable and aligns with evidence suggesting that board independence does not always improve firm outcomes in developing institutional environments [20, 22]. The result also highlights the distinction between formal governance structures and their practical effectiveness.

Another noteworthy finding was the significant negative relationship between board financial knowledge and stock market liquidity. At first glance, this result appears counterintuitive because financially knowledgeable directors are generally expected to improve reporting quality and governance effectiveness. However, several explanations may account for the observed relationship. Directors possessing extensive financial expertise may adopt more conservative policies, implement stricter risk controls, and discourage speculative trading activities. Such governance practices can reduce trading volume even while improving decision quality. Additionally, financially sophisticated boards may emphasize long-term value creation rather than short-term market activity. This interpretation is compatible with stakeholder-oriented governance perspectives emphasizing sustainable organizational performance rather than market speculation [9]. Furthermore, financially knowledgeable directors may be more aware of regulatory risks and information sensitivity, leading to more cautious communication strategies that inadvertently reduce trading intensity. Therefore, although financial expertise enhances governance quality, its relationship with stock liquidity may not necessarily be positive.

The findings regarding the control variables provide additional insights. Firm size exhibited a significant relationship with liquidity in the ownership model, suggesting that larger firms generally enjoy greater investor attention, broader analyst coverage, and higher trading activity. This observation is consistent with prior literature indicating that large firms benefit from superior visibility and lower information asymmetry [23, 29]. Return on assets also demonstrated a significant association with liquidity, indicating that profitable firms tend to attract more investors and experience greater trading activity. Financial leverage showed weaker and less consistent effects, suggesting that debt levels alone are insufficient to explain variations in stock market liquidity.

Taken together, the findings emphasize the importance of governance mechanisms in shaping stock market liquidity. Ownership structure appears to play a more substantial role than board characteristics in explaining liquidity differences among firms listed on the Tehran Stock Exchange. This conclusion is supported by the higher explanatory power of the ownership model compared with the board characteristics model. The results reinforce the broader governance literature, which argues that shareholder structure significantly influences corporate behavior, information environments, and market outcomes [5, 8, 11]. At the same time, the findings illustrate that governance mechanisms may operate differently across institutional contexts, highlighting the importance of conducting country-specific investigations.

This study has several limitations that should be considered when interpreting the findings. First, the analysis was limited to firms listed on the Tehran Stock Exchange and therefore may not fully represent other capital markets or privately held companies. Second, stock liquidity was measured using the share turnover ratio, while other liquidity measures such as bid-ask spread, Amihud illiquidity ratio, or zero-return measures were not examined. Third, the study focused on selected ownership and board characteristics and did not include other governance dimensions such as audit committee effectiveness, CEO duality, board diversity, executive compensation, or shareholder activism. Finally, although panel data techniques improve causal inference, the observational nature of the data limits the ability to establish definitive causal relationships.

Future studies may extend the present research by examining alternative measures of stock liquidity and comparing the results across different liquidity proxies. Researchers may also investigate the moderating effects of

institutional quality, economic uncertainty, corporate life cycle, industry characteristics, or financial transparency on the relationship between governance mechanisms and liquidity. Comparative studies involving multiple countries or different stock exchanges could provide valuable insights into the role of institutional environments in shaping governance outcomes. Additionally, future research may employ dynamic panel models, structural equation modeling, or machine learning approaches to explore more complex relationships among governance variables and market performance indicators.

The findings suggest several practical implications for policymakers, regulators, investors, and corporate managers. Regulatory authorities should encourage governance practices that enhance transparency and reduce excessive ownership concentration in order to improve market liquidity. Listed firms should seek an appropriate balance between managerial ownership and shareholder protection mechanisms to strengthen investor confidence. Boards of directors should focus not only on formal governance structures but also on improving the effectiveness of board processes, communication, and oversight activities. Investors should carefully evaluate ownership concentration, institutional ownership levels, and board composition when making investment decisions, as these governance characteristics appear to influence stock liquidity significantly. Finally, capital market regulators may consider developing policies that increase free-float shares, promote disclosure quality, and encourage broader investor participation to enhance overall market liquidity and efficiency.

Authors' Contributions

Authors equally contributed to this article.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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