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The Effect of Managerial Ability on Stock Price Synchronicity: The Moderating Role of State Ownership and Institutional Ownership with an Emphasis on the Informational Efficiency of the Capital Market

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ABSTRACT

The present study seeks to explain the moderating role of ownership structure in the relationship between managerial ability and stock price synchronicity among companies listed on the Tehran Stock Exchange. The research method used for data collection was library-based, along with the use of the databases of the Tehran Stock Exchange Organization, and the data were examined in an ex post facto framework. The regression method employed was multivariate, and the data structure was panel data. In order to conduct the regression analysis, the underlying assumptions of regression were also examined. The statistical population of the study, selected based on a screening pattern and systematic elimination method, includes 175 companies listed on the Tehran Stock Exchange over an eight-year period from the beginning of 2017 to the end of 2024. Two hypotheses were formulated for the study. The results of hypothesis testing showed that managerial ability has no significant relationship with stock price synchronicity, and institutional ownership, as a moderating variable, was also unable to significantly alter this relationship. In other words, the presence of institutional shareholders, despite theoretical expectations, did not provide an effective mechanism for improving the incorporation of firm-specific information into stock prices. The findings regarding state ownership likewise indicate the absence of a significant moderating role; that is, the type and nature of state ownership did not exert a meaningful effect on the way stock prices responded to managerial ability. In contrast, some control variables, including financial leverage and the book-to-market ratio, showed a significant relationship with stock price synchronicity, suggesting that structural and financial factors play an important role in explaining the degree to which stock prices move in tandem with the market.

Keywords: Managerial ability, stock price synchronicity, ownership structure, institutional ownership, state ownership, corporate governance.

1. Introduction

Stock price synchronicity, as one of the important indicators of the informational efficiency of the capital market, reflects the extent to which firm-specific information is not incorporated into stock prices and, instead, price fluctuations are driven more by market- and industry-wide news. In the finance and accounting literature, higher synchronicity is generally regarded as a sign of weakness in the processing of firm-level information, limitations in effective disclosure, or the dominance of macro-level factors over the price discovery process. From this perspective, studying the determinants of stock price synchronicity is of particular importance for understanding the quality of asset pricing, market efficiency, and the mechanisms of information transmission in the Tehran Stock Exchange (Ruanan et al., 2024).

In this context, managerial ability may be considered one of the central variables in explaining the observed differences in stock price synchronicity. More capable managers generally perform more effectively in allocating resources, selecting projects, processing information, and reducing information asymmetry, and through improving decision quality and disclosure, they provide a setting for a greater incorporation of firm-specific information into stock prices. Recent evidence also indicates that managerial ability is associated with favorable auditing and monitoring outcomes, which may indirectly enhance transparency and reduce informational ambiguity at the firm level. Accordingly, managerial ability is expected to have a negative relationship with stock price synchronicity, because improvements in management quality strengthen the role of firm-specific information in price formation (Haque et al., 2025).

However, the magnitude and direction of this effect may depend on ownership structure. State ownership and institutional ownership, on the one hand, may strengthen the effect of managerial ability on informational transparency through enhanced monitoring, reduced opportunistic behavior, and improved disclosure discipline; on the other hand, under certain conditions, they may weaken the mechanism of information transmission because of policy considerations, non-economic objectives, or ownership concentration. Recent studies on ownership reforms and their impact on stock markets suggest that changes in ownership composition can affect pricing quality and market reactions to firm information. Therefore, examining the moderating role of state and institutional ownership in the relationship between managerial ability and stock price synchronicity can fill an important gap in the literature on corporate governance and informational pricing in the Iranian capital market (Gu et al., 2025).

The importance of this study can be explained from both theoretical and empirical perspectives. From a theoretical point of view, despite the expansion of research in the area of informational efficiency, the link between qualitative managerial characteristics, namely managerial ability, and price discovery mechanisms, namely stock synchronicity, still faces significant ambiguities. While most prior studies have focused on structural variables or information disclosure, this study introduces managerial ability as a determining factor in the quality of the process through which information is transformed into prices, thereby attempting to identify the underlying mechanisms that shape market efficiency. The importance of this issue lies in understanding whether capable managers can, by reducing information asymmetry, prevent artificial synchronicity in prices and move the market toward pricing based on firm-specific information. From an empirical and practical perspective, the significance of this study lies in the unique context of the Iranian capital market. Unlike developed markets, the Tehran Stock Exchange has distinctive features, including the strong presence of state ownership and varying forms of institutional ownership, which may substantially moderate the effects of management on pricing. In an environment where governance and ownership structures may function both as monitoring mechanisms and as constraints, identifying the moderating role of state and institutional ownership is vital for policymakers, regulators, and investors.

The main innovation of this study can be summarized in three dimensions. First, unlike prior studies that have generally examined the direct effects of variables, this research adopts a multidimensional approach to investigate the moderating effect of ownership structures on the relationship between managerial ability and stock price synchronicity, thereby contributing to a more precise understanding of the conditions under which management affects the market. Second, this study bridges the gap between the management literature and the capital market literature by combining concepts from strategic management,

namely managerial ability, with market-based financial concepts, namely price synchronicity. Third, and finally, applying this model to the Iranian stock market, given the structural characteristics of ownership, offers a strategic case study that may provide a new pattern for analyzing the effects of corporate governance on informational efficiency in emerging markets.

Accordingly, the present study seeks to answer the following main question: Does managerial ability have a significant effect on stock price synchronicity in the Tehran Stock Exchange, and how does ownership structure, including state and institutional ownership, moderate this relationship?

Theoretical Foundations

Stock Price Synchronicity and Informational Efficiency of the Market

One of the most important criteria for evaluating the informational efficiency of the capital market is the degree to which firm-specific information is reflected in stock prices. Within the framework of the "information view," the more stock prices reflect unique and firm-specific information, the less dependent they are on overall market returns and the lower the degree of stock price synchronicity will be. Stock price synchronicity is measured through the coefficient of determination from the regression of stock returns on market and industry returns. A low coefficient of determination indicates greater informational richness of prices, whereas a high coefficient suggests that the market relies mainly on public information and that firm-specific signals are not incorporated into prices.

Managerial Ability and the Channels Through Which It Affects Synchronicity

Managerial ability refers to the manager's capacity to allocate the firm's resources efficiently and optimally in order to maximize income and value, and it is usually measured through relative efficiency using data envelopment analysis. This ability affects stock price synchronicity through two channels. First, by improving performance and reducing unsystematic fluctuations arising from poor management, it enhances the informational content of prices. Second, by improving disclosure quality, providing more accurate forecasts, and reducing informational ambiguity, it facilitates information processing for investors and enriches prices. Accordingly, managerial ability is expected to have a negative relationship with stock price synchronicity.

Managerial Ownership

Managerial ownership refers to the proportion of a company's shares held by board members and executive managers and determines the degree of alignment between their interests and those of shareholders. Based on agency theory, the separation of ownership from control places managers in a position where they may diverge from shareholder interests in pursuit of personal utility maximization. This conflict of interest becomes particularly apparent in the domain of managerial information behavior, because disclosure, transparency, and the transmission of firm-specific information are largely under managerial discretion. Within this framework, managerial ownership serves as an internal mechanism for aligning the manager's incentives with those of the owners. The greater the manager's shareholding, the greater the cost they bear from a decline in firm value, and consequently the stronger their incentive to make value-enhancing decisions and provide more transparent disclosure. This alignment of interests creates an important channel through which stock price synchronicity may be affected. A manager with greater ownership has a stronger incentive to reduce informational ambiguity and convey firm-specific signals to the market, because their personal wealth is directly tied to the company's market value. This process increases the informational content of stock prices and consequently reduces the coefficient of determination in the regression of stock returns on market and industry returns, that is, it reduces synchronicity. In other words, managerial ownership can strengthen the channel through which managerial ability affects stock price synchronicity. A capable manager, who already has a high capacity for efficiency and reducing performance fluctuations, may, in the presence of higher ownership stakes, be more inclined to transform this capacity into transparent and differentiated informational signals. Therefore, it is expected that at higher levels of managerial ownership, the negative relationship between managerial ability and stock price synchronicity becomes stronger and more significant. However, attention must also be paid to the more

complex effects of this variable. At very high levels of managerial ownership, the phenomenon of managerial entrenchment may emerge. Under such conditions, managers may become insulated from effective shareholder monitoring due to their voting power, and their incentive to disclose firm-specific information and maintain transparency may decline. In such cases, managerial ownership may weaken rather than strengthen the relationship between managerial ability and reduced synchronicity. Empirical studies have also shown that the relationship between managerial ownership and firm value or informational quality is not necessarily linear and may vary across different ownership ranges, making the test of the moderating role of managerial ownership sensitive to ownership levels.

Institutional Ownership

Institutional ownership refers to the shares held by financial and legal institutions such as investment funds, investment companies, banks, insurance firms, and other financial intermediaries. Due to the large scale of their investments, access to specialized analytical teams, and longer investment horizons, institutional shareholders possess the capacity to actively monitor managerial performance and information-related behavior. This analytical capacity allows them not only to rely on public market information but also to extract, process, and incorporate firm-specific information into pricing. This factor is directly linked to the logic of the information view of stock price synchronicity, because greater processing of firm-specific information enriches the informational content of prices and reduces dependence on market-wide returns. In the relationship between managerial ability and stock price synchronicity, institutional ownership may function as a complementary monitoring mechanism. Active institutional shareholders, through continuous monitoring of managerial decisions and demands for transparency, may push capable managers toward higher-quality and more accurate disclosure, thereby transforming managerial informational capacity into credible and differentiated pricing signals. This process strengthens the negative relationship between managerial ability and stock price synchronicity. In other words, in firms with high institutional ownership, the distinction between an informed capable manager and an uninformed manager becomes more observable to the market, and firm-specific information resulting from managerial efforts is reflected in stock prices more effectively and more rapidly. The result is a more significant reduction in stock price synchronicity. Nevertheless, the moderating role of institutional ownership also depends on the nature and motives of the institutions involved and cannot be assumed to be uniform and homogeneous. Institutions with short-term trading incentives or passive investment strategies, such as index funds, may not only fail to perform an active monitoring role, but may also weaken the processing of firm-specific information due to their emphasis on market benchmarks and trading behavior. In the absence of active institutional monitoring, even a capable manager may lack sufficient incentives to disclose differentiated information, and the relationship between managerial ability and lower synchronicity may remain weak or statistically insignificant. Therefore, in practice, the moderating effect of institutional ownership depends on the degree of institutional activism and their independence from auditor-client relationships, and its empirical testing requires attention to distinctions among different types of institutions and their investment horizons.

Review of Prior Research

Vaghefi et al. (2025) examined the role of ownership structure in moderating the relationship between stock price synchronicity and stock mispricing. Their findings indicate that stock price synchronicity has a significant and direct effect on stock mispricing. The evidence also shows that managerial ownership and institutional ownership have a weakening moderating effect on the relationship between stock price synchronicity and stock mispricing. In addition, family ownership and state ownership do not have a significant effect on the relationship between stock price synchronicity and stock mispricing. The results suggest that the proportion of institutional and managerial owners, as monitoring levers within a firm's ownership structure, mitigates the unfavorable effect of stock price synchronicity on stock mispricing and likely works in the interests of investors.

Kamran and Takbiri (2024) investigated the effect of stock liquidity on stock price crash risk, with the moderating role of institutional ownership. The empirical findings showed that stock liquidity plays a determining role in increasing crash risk. This finding

is consistent with the view of the accumulation and sudden release of bad news, especially in markets such as Iran where short selling and informational transparency are limited. Specifically, the coefficient of the Amihud index, as an inverse measure of liquidity, was positive and significant in the NCSKEW model, indicating that the more liquid the stock, the higher the probability of a crash caused by the accumulation of negative news. By contrast, in the DUVOL model, the effect of liquidity was negative but insignificant, suggesting that this measure is less sensitive to liquidity than the skewness measure. Institutional ownership alone did not show a significant effect on crash risk, but its interactive effect with liquidity was fully significant. In the NCSKEW model, the coefficient was -0.0040, and in the DUVOL model, it was +0.0044, both significant at the 0.01 level. This difference in signs indicates that the presence of institutional investors slows the protective slope of low-liquidity trading. In the skewness model, although the relationship remains negative, the effect is weakened, while in the volatility model it effectively becomes neutral. In addition, the turning point of the effect occurs at an institutional ownership level of approximately 6.14 percent. Given that nearly two-thirds of the sampled firms have institutional ownership above this threshold, this finding suggests that in most firms, the combination of high liquidity and high institutional ownership, especially in the presence of short-term-oriented institutions, may intensify rather than reduce stock price crash risk. This pattern is consistent with the hypothesis of institutional short-termism.

Meran Jouri (2023) examined CEO power and stock price crash risk, with the moderating role of ownership structure. The findings showed a positive and significant relationship between CEO power and stock price crash risk in the Tehran Stock Exchange. Ownership structure also weakens the positive relationship between CEO power and stock price crash risk.

Boroun et al. (2023) investigated the role of ambiguity in financial reporting and managerial ability on stock price synchronicity with emphasis on the role of ownership diversity in the Tehran Stock Exchange. The results showed a negative and significant relationship between managerial ability and stock price synchronicity, and a positive and significant relationship between ambiguity in financial reporting and stock price synchronicity. Institutional ownership intensified the negative relationship between managerial ability and stock price synchronicity and moderated and reduced the positive relationship between financial reporting ambiguity and stock price synchronicity. In other words, capable managers seek to build commercial credibility and thereby preserve more cash within the firm over a longer time horizon to advance investment and operational projects. Therefore, through various mechanisms, they attempt to reduce informational ambiguity within the firm and, based on signaling theory, increase informational transparency, reduce information asymmetry, and decrease stock price synchronicity. Moreover, financial reporting ambiguity hinders the effectiveness of corporate governance systems in overcoming information asymmetry and agency costs, causing stock prices to reflect more industry and market information and less firm-specific information, thereby increasing synchronicity. In addition, as institutional ownership increases, given the control and monitoring role of these shareholders, managerial behavior comes under closer supervision and managers act more in line with the rights of these shareholders, who seek to increase firm value. These factors increase the informational content of stock prices, resulting in more information being incorporated into the firm's stock price and consequently reducing stock price synchronicity.

Hemmati et al. (2022) examined stock price synchronicity and herd behavior in capital market decision-making, testing the moderating role of institutional shareholders. The results of the hypothesis tests showed that stock price synchronicity has a negative and significant effect on herd behavior among shareholders, and in the presence of institutional shareholders as a moderating variable, this negative effect is intensified.

Khoshkar and Karimi (2021) investigated the moderating role of institutional and managerial ownership in the effect of accounting conservatism on stock price crash risk. The results showed that accounting conservatism has a negative and significant effect on stock price crash risk; institutional ownership plays a moderating role in the effect of accounting conservatism on stock price crash risk; however, managerial ownership does not have a moderating role in this relationship.

Farrokhi (2026) examined the effect of managerial overconfidence on stock price crash risk, with the moderating role of institutional ownership, using evidence from firms listed on the Tehran Stock Exchange. The findings, grounded in agency theory and the bad news hoarding hypothesis, show a statistically significant positive relationship between managerial overconfidence and future stock price crash risk. Overconfident managers systematically conceal unfavorable financial information to protect their rights and benefits and thereby accelerate abrupt market corrections once accumulated bad news is eventually disclosed. Importantly, the analysis indicates that strong institutional ownership effectively mitigates this harmful phenomenon. Institutional investors, as sophisticated monitors, constrain the opportunistic hoarding of bad news and enforce timely and transparent disclosure. These results underscore the critical necessity of strong external monitoring mechanisms to protect the stability of emerging markets against managerial cognitive biases.

Xiaojun and Pi (2023) studied managerial ability and stock price synchronicity. The results show that the greater the manager's ability, the more information is transmitted from the firm's management to the outside, the more firm-specific information is contained in stock prices, and therefore the lower the stock price synchronicity. In listed firms with high institutional ownership, managerial ability can reduce stock price synchronicity.

Chi and Dai (2022) examined managerial ownership and stock price volatility, with the moderating role of corporate transparency in China. Empirical results from a multiple linear regression model show a positive correlation between managerial ownership and corporate transparency. The results also provide evidence that the negative correlation between managerial ownership and stock volatility is stronger in firms with lower transparency and weaker in firms with higher transparency. Firms should cooperate with financial analysts to enhance corporate transparency. Individual investors can evaluate market performance by examining the firm's ownership structure, the number of collaborating analysts, and the number of research reports in order to establish a more reliable basis for investment.

Fu et al. (2022) conducted a study entitled managerial ability and stock price synchronicity. Using a sample consisting of 17,551 firm-year observations over the period 2008 to 2020 and applying Tobit regression, the findings showed a negative relationship between managerial ability and stock price synchronicity. This negative relationship was weaker for state-owned firms and more pronounced for firms with higher institutional ownership.

Eqbali et al. (2022) conducted a study on the effect of ownership structure and auditing characteristics on the likelihood of financial distress, considering the moderating effect of managerial ability, using data from 107 companies and Tobit regression over the years 2014 to 2015. The results showed that auditing characteristics, including auditor size and audit opinion, have a positive effect on the likelihood of financial distress. In addition, the effect of ownership structure, including shareholder ownership and institutional ownership, on the likelihood of financial distress and the moderating effect of managerial ability were not confirmed.

Truong et al. (2021) investigated the effect of ownership structure on stock price synchronicity using a sample of all firms listed on the Vietnam Stock Exchange from 2007 to 2017 through multivariate regression. The findings showed that in Vietnam, stock price synchronicity is mainly driven by overall market information. In addition, there is a negative relationship between large shareholder ownership, foreign investor ownership, and stock price synchronicity, whereas there is a positive relationship between state ownership and stock price synchronicity.

Research Hypotheses

Hypothesis 1: State ownership weakens the negative relationship between managerial ability and stock price synchronicity.

Hypothesis 2: Institutional ownership strengthens the negative relationship between managerial ability and stock price synchronicity.

Research Methodology

The present study is based on the library research method, and the information required for conducting the study was collected using books, journals, articles, and periodicals. Since the subject of the study concerns firms listed on the Tehran Stock Exchange, the statistical sample was selected from these firms in such a way that the chosen sample includes companies

from all active industries in the Exchange and therefore has the capacity to generalize the findings to the entire statistical population of firms listed on the Tehran Stock Exchange.

In this study, data were collected using the Rahavard Novin software. The statistical population includes all firms listed on the stock exchange over the period 2017 to 2024. Among these firms, those that maintained continuous activity during the research period and did not experience a trading halt of more than six months were included.

Research Models and Variables

The model of the first hypothesis of the study

$SYNCH_{it} = \beta_0 + \beta_1 MA_{it} + \beta_2 StateOwn_{it} + \beta_3 StateOwn_{it} * MA_{it} + \beta_4 SIZE_{it} + \beta_5 LEV_{it} + \beta_6 BM_{it} + \beta_7 ROE_{it} + \beta_8 TOPHOLD_{it} + \varepsilon_{it}$

Research Hypothesis 2 Model

$SYNCH_{it} = \beta_0 + \beta_1 MA_{it} + \beta_2 InsShareholding_{it} + \beta_3 InsShareholding_{it} * MA_{it} + \beta_4 SIZE_{it} + \beta_5 LEV_{it} + \beta_6 BM_{it} + \beta_7 ROE_{it} + \beta_8 TOPHOLD_{it} + \varepsilon_{it}$

Table (1): Research Variables

Type Variable	Symbol	Variable	How the Variable Is Calculated
Dependent	SYNCH	Stock price synchronicity	Stock price synchronization indicates the extent to which information at the macro-market and industry level is reflected in stock price fluctuations relative to company-specific information. To calculate the synchronicity of the stock price of company i in fiscal year t, first the coefficient of determination (R2) is estimated by regressing the company's return on the simultaneous and lagged returns of the market and industry (Piotrowski and Roll, 2004; Chen et al., 2007) as follows: $R_{i,w,t}=\beta 0+\beta 1 Rm,w,t+\beta 2 Rm,w-1,t+\beta 3 Rind,i,w,t+\beta 4 Rind,i,w-1,t+\varepsilon i,w,t$ Where: • $R_{i,w,t}$ is the weekly return of company i's stock in week w of fiscal year t (including capital gains and cash dividends). • $R_{m,w-1,t}$ and $R_{m,w,t}$ are the simultaneous and lagged weekly returns of the total market index in year t, respectively. • $R_{ind,i,w,t}$ and $R_{ind,i,w-1,t}$ are the simultaneous and lagged weekly returns of the total market index in year t, respectively. The time lags of the relevant industry index (excluding the return of company i to remove autocorrelation bias) are in year t.
Independent	MA	Managerial ability	To measure managerial capability, the standard two-stage approach of Demarjian, Lu, and McVey (2012) is used, which separates management efficiency from inherent efficiency and structural :characteristics of the firm Step 1: Estimating the total efficiency of the firm using Data (Envelopment Analysis (DEA In this step, the relative efficiency of each firm in converting resources into income is calculated using the Data Envelopment Analysis model with variable returns to scale (BCC/VRS) with an output-oriented orientation. The result of solving this linear programming model is the total efficiency score of the firm ($\theta i,t$), which takes a value in the range .(0 and 1), and firms with a score of 1 are on the efficiency frontier Second step: Separating the intrinsic characteristics of the company (from management ability (Tobit regression Since the total efficiency of the company (θ) is a combination of the ability of managers and the structural and environmental characteristics of the company, a censored Tobit Regression is used in the interval (0 .and 1) to extract the pure component of management skill
Moderating	STATEOWN	State ownership	he ratio of shares owned by the government, ministries, government agencies, non-governmental public institutions, and state-owned companies (directly on behalf of government institutions) to the total outstanding shares of the firm. If a precise separation is not feasible, it can be measured as a dummy variable (=1 having state ownership,=0 without it).
	INSSHAREHOLDING	Institutional shareholders	The ratio of the number of shares owned by large financial and legal entities (banks, investment companies, pension funds, insurance

Type Variable	Symbol	Variable	How the Variable Is Calculated
			companies, and legal shareholders holding more than 5%) to the total shares of the firm.
Control	SIZE	Firm size	Natural logarithm of total assets or the market value of the firm
	LEV	Financial leverage	Ratio of total liabilities to total assets
	BM	Book-to-market	Ratio of the book value of equity to its market value
	ROE	Return on equity	Ratio of net income to equity
	TOPHOLD	Largest shareholder	Percentage of shares owned by the largest shareholder of the firm

Research Findings

Descriptive Statistics

Table (2): Descriptive Statistics of the Research Hypothesis Variables

Variable	Symbol	Mean	Median	Minimum	Maximum	Skewness	Standard Deviation
Stock price synchronicity	SYNCH	-0.118	-0.053	24.371	-6.911	2.727	1.986
Managerial ability	MA	0.003	0.002	0.495	-0.397	0.088	0.110
State ownership	STATEOWN	0.575	0.637	0.961	0	-0.853	0.278
Institutional shareholders	INSSHAREHOLDING	0.648	0.684	0.980	0.635	0.821	0.206
Firm size	SIZE	15.135	14.774	21.327	11.303	0.902	1.658
Financial leverage	LEV	0.586	0.564	0.996	0.031	0.373	0.202
Book-to-market ratio	BM	0.344	0.292	1.664	0.004	0.285	0.261
Asset return	ROE	0.528	0.514	0.954	0.087	0.045	0.184

Testing the Research Hypotheses

Hypothesis 1: State ownership weakens the negative relationship between managerial ability and stock price synchronicity.

The results of testing the first research hypothesis are as follows:

Table (3): Results of Testing the First Research Hypothesis

Variable name	Coefficients	Standard deviation	t-statistic	Significance level
Width from origin	0.215	0.430	0.500	0.617
Managerial Ability	0.342	0.611	0.560	0.576
State Ownership	-0.003	0.005	-0.600	0.549
Interaction Effect of State Ownership and Managerial Ability	-0.012	0.018	-0.667	0.505
Firm size	0.045	0.038	1.184	0.237
Financial leverage	-0.485	0.182	-2.665	0.008
Book-to-market ratio	0.246	0.098	2.510	0.012
Largest shareholder	0.114	0.145	0.786	0.432
Asset return	Adjusted R^2	Coefficient of Determination (R^2)	Durbin–Watson	F-statistic
0.41	0.142	0.128	1.96	10.15

Research Findings

Given that the basis for judgment in research hypotheses is the statistical significance of the interaction effect between the moderating variable and the independent variable, the main focus of the interpretation is on the coefficient of the interaction effect of state ownership and managerial ability. This variable, with a coefficient of 0.012 and a significance level of 0.505, is not statistically significant; because the significance level is much greater than the conventional threshold (0.05). Therefore, at the 95% confidence level, it cannot be claimed that state ownership significantly weakens the negative relationship between managerial ability and stock price synchrony. In fact, although the positive sign of the interaction coefficient is consistent with the theoretical logic of the hypothesis in terms of direction (because the positive sign in interaction with the main negative relationship means reducing the intensity of that relationship), the lack of statistical significance of this coefficient means that any inference from the moderating effect of state ownership lacks statistical support. This finding does not confirm the first hypothesis of the research.

In addition, the variable of managerial ability as a main effect is also not significant at any of the conventional levels with a coefficient of 0.342 and a significance level of 0.576; although the negative sign of the coefficient is consistent with the theoretical expectation of a decreasing relationship between managerial ability and stock price synchrony, its lack of statistical significance challenges even the conceptual basis for the interpretation of moderation. This means that in a situation where the main relationship between the two variables is not reliably established, the discussion of weakening or strengthening that relationship becomes analytically meaningless. Similarly, the variable of state ownership as a direct effect with a coefficient of -0.003 and a significance level of 0.549 does not have any significant effect on stock price synchrony.

Among the control variables, firm size (SIZE) is significant at the 5% level with a positive coefficient of 0.045 and a significance level of 0.237, indicating that larger firms have higher stock price synchronicity, a finding consistent with the literature on the role of analytical coverage and faster reflection of public information in the stock prices of large firms. In contrast, financial leverage (LEV) is strongly significant at a coefficient of -0.485 and a significance level of 0.008, indicating that increasing debt levels reduce stock price synchronicity, a result that can be attributed to higher financial risk and greater differentiation of specific information of these firms. Book-to-market ratio (BM) is also significant at the 5% level with a coefficient of 0.246 and a significance level of 0.012, indicating that firms with fewer growth opportunities have lower stock price synchronicity. Finally, the variable return on assets with a coefficient of 0.114 and a significance level of 0.432 is not significant at any level, and ownership concentration in terms of return on assets does not have a reliable effect on stock price synchronicity in the sample under study.

Testing the Second Research Hypothesis

Hypothesis 2: Institutional ownership strengthens the negative relationship between managerial ability and stock price synchronicity. The results of testing the second research hypothesis are as follows:

Table (4): Results of Testing the Second Research Hypothesis

Variable name	Coefficients	Standard deviation	t-statistic	Significance level
Width from origin	0.189	0.422	0.448	0.654
Managerial Ability	0.518	0.910	0.569	0.569
Institutional Ownership	-0.004	0.006	-0.667	0.505
Interaction Effect of Institutional Ownership and Managerial Ability	-0.017	0.020	-0.850	0.395
Firm Size	0.041	0.037	1.108	0.268
Financial Leverage	-0.492	0.180	-2.733	0.006
Book-to-Market Value	0.251	0.097	2.588	0.010
Largest Shareholder	1.108	0.142	0.761	0.447
Asset return	Adjusted R^2	Coefficient of Determination (R^2)	Durbin–Watson	F-statistic
0.43	0.148	0.134	1.98	10.62

Research Findings

Given that the basis for judgment in research hypotheses is the statistical significance of the interaction effect between the moderating variable and the independent variable, the main focus of the interpretation is on the coefficient of the interaction effect of institutional ownership and managerial ability. This variable, with a coefficient of -0.017 and a significance level of 0.395, is not statistically significant at any conventional level; because the significance level is much greater than the conventional threshold (0.05). Therefore, at the 95% confidence level, it cannot be claimed that institutional ownership significantly strengthens the negative relationship between managerial ability and stock price synchronicity. In fact, although the negative sign of the interaction coefficient is consistent with the theoretical logic of the hypothesis in terms of direction (because the negative sign in interaction with the main negative relationship means intensifying the intensity of that relationship), the lack of statistical significance of this coefficient causes any inference from the moderating effect of institutional ownership to lack statistical support. This finding does not confirm the second hypothesis of the research.

In addition, the managerial ability variable is not significant at any of the conventional levels as a main effect with a coefficient of 0.518 and a significance level of 0.569. It is noteworthy that in this model, the sign of the managerial ability coefficient is positive, contrary to theoretical expectations; however, due to the lack of statistical significance, no valid inference can be drawn from this sign. Even if the main relationship is not significant, from a methodological perspective, the discussion of how to moderate the hypothesized negative relationship becomes statistically consistent when the interaction effect is significant. This means that in a situation where neither the main relationship reliably holds nor the interaction effect is statistically significant, any claim about the strengthening of the negative relationship by institutional ownership will lack empirical support. Similarly, the institutional ownership variable is not statistically significant as a direct effect with a coefficient of -0.004 and a significance level of 0.505 and has no reliable direct effect on stock price synchronicity.

Among the control variables, financial leverage (LEV) is strongly significant with a coefficient of -0.492 and a significance level of 0.006, indicating that increasing debt levels reduce stock price synchronization, a finding that can be attributed to higher financial risk, greater volatility of returns, and the distinctiveness of specific information of the companies in the sample. Book-to-market ratio (BM) is also significant with a coefficient of 0.251 and a significance level of 0.010 at the 5% level, indicating that companies with fewer growth opportunities have lower stock price synchronization. In contrast, company size (SIZE) with a coefficient of 0.041 and a significance level of 0.268, as well as the return on assets variable with a coefficient of 0.108 and a significance level of 0.447, are not significant at any conventional level and do not have a reliable effect on stock price synchronization in the sample under study.

Conclusion

The present study was designed to investigate the moderating role of ownership structure in the relationship between managerial ability and stock price synchronization and tested the moderating effect of state ownership and institutional ownership on the intensity of the hypothesized negative relationship between managerial ability and stock price synchronization in the form of two hypotheses. The basis for judgment in both hypotheses is the statistical significance of the interaction effect between the moderating variable and the independent variable, and the results obtained provide a relatively clear picture of the mechanism of the impact of ownership structure on the information efficiency of stock prices in the context of the country's capital market. The findings of the study in the form of both hypotheses do not support the confirmation of the moderating role of ownership structure. In the case of the first hypothesis, although the direction of the sign of the interaction effect of state ownership and managerial ability is in line with the expectation of the study from a theoretical perspective and indicates that state ownership can reduce the intensity of the negative relationship between managerial ability and stock price synchronization, the lack of statistical significance of this interaction effect makes any inference about the weakening of the aforementioned relationship without empirical support. This situation becomes more prominent when the main relationship between managerial ability and stock price synchrony has not been reported to be meaningful at a conventional level;

that is, in the absence of a reliable main relationship, judging whether or not that relationship is moderated is not considered analytically justified. In other words, moderation only has a clear and interpretable meaning when it can affect the path of a significant main relationship; but when the main relationship itself lacks empirical support, the presence or absence of an interaction effect alone does not provide a complete picture of the mechanism in question. Therefore, the first hypothesis of the study, which implied that the negative relationship between managerial ability and stock price synchrony would be weakened by state ownership, was not confirmed.

Similarly, in the second hypothesis, the interaction effect of institutional ownership and managerial ability did not have the necessary statistical significance, and although the sign of the interaction coefficient is consistent with the theoretically expected direction, namely strengthening the negative relationship between managerial ability and stock price synchrony, this directional alignment alone cannot be the basis for confirming the hypothesis. The lack of significance of the interaction effect, together with the lack of significance of the main relationship and the lack of a direct effect of institutional ownership on stock price synchrony, indicates that in the sample under study, institutional ownership as an external monitoring mechanism has failed to play a reinforcing role in transforming managerial abilities into improving the information efficiency of stock prices. This finding is significant from a theoretical perspective, because based on theoretical foundations, institutional ownership was expected to provide a platform for managerial ability to be reflected more effectively in stock prices by reducing agency costs and improving monitoring of managers; however, the research results do not confirm such a complementary mechanism in the sample under study. Accordingly, the second hypothesis of the study also does not have the necessary empirical support and is not confirmed.

In summary, the findings of this study show that the ownership structure in both governmental and institutional aspects, in the present sample and period of study, has failed to play a meaningful and moderating role in the relationship between managerial ability and stock price synchrony. From this perspective, it seems that in the context of the country's capital market, the mechanisms resulting from managerial ability and the supervisory mechanisms resulting from the composition of shareholders, independently and in the absence of efficient complementarity between them, have not been able to significantly improve the information efficiency of stock prices. The failure to confirm the hypotheses may reflect the structural conditions of the capital market, the behavioral pattern of investor institutions that may seek short-term benefits rather than play an active supervisory role, as well as the specific characteristics of the companies and the time period of the study. Also, the method of measuring managerial ability based on the model used and the degree of separation of state ownership in the composition of shareholders are among the methodological factors that can affect the lack of observation of a significant relationship and should be considered in the interpretation of the findings.

In addition to these factors, a few additional points can make the interpretative picture of the findings more complete. First, the high level of stock price synchronization in the Iranian capital market, as a structural and pervasive phenomenon, may have limited the range of fluctuations between companies to such an extent that the differentiation of the effects of firm-level variables such as managerial ability and ownership structure is not significantly significant; in other words, in a market where market-based information constitutes the dominant share of information available in the price, the capacity of fundamental firm-level variables to change the synchronization pattern in a structural way is limited. Second, the quality and transparency of the information environment of companies and the manner of financial reporting, as a prerequisite for reflecting proprietary information in stock prices, may be so homogeneous or limited in the sample under study that the effectiveness of the managerial ability and supervisory mechanisms of institutional and government shareholders in improving information efficiency has been weakened. Third, the limitation of the time period and sample size reduces the possibility of identifying the long-term and dynamic effects of these mechanisms; because the change in the composition of shareholders and the maturity of investor institutions is a time-consuming process and its effects may not appear meaningfully in a shorter time horizon. Therefore, the interpretation of the failure to confirm the hypotheses should not be interpreted as a denial of the potential role of

ownership structure and managerial ability in information efficiency, but rather as an indication of the dependence of these mechanisms on the institutional context, information environment, and time horizon under study.

Practical Suggestions Based on the Research Findings

The findings of this study showed that state ownership and institutional ownership, each separately, did not play a significant moderating role in the relationship between managerial ability and stock price synchronicity. This result carries an important practical implication for policymakers and capital market regulators: merely changing or strengthening ownership composition alone cannot provide an effective disciplinary mechanism for improving the informational efficiency of stock prices. Accordingly, policymakers are advised to focus not solely on ownership structure, but also on the development of complementary institutional mechanisms that can facilitate the effect of managerial ability on the quality of market information. Strengthening the requirements for timely and transparent disclosure by listed firms, improving financial reporting standards, and establishing effective oversight over audit quality are among such complements that can enhance the content and reliability of information released to the market and provide a better setting for the reflection of firm-specific characteristics in stock prices.

At the corporate level, given that managerial ability did not show a significant main effect on stock price synchronicity in any of the tested models, managers are advised to moderate their expectations regarding the direct influence of their personal capabilities and skills on stock price movements, and instead focus on improving the informational transparency of financial reports and reducing ambiguity surrounding firm performance and future prospects. In other words, managerial ability can influence the informational efficiency of stock prices only when it is transmitted through effective informational and monitoring mechanisms in the market. Therefore, managers should make greater efforts to establish transparent and comprehensive communication with the market and financial analysts, provide supplementary information, and reduce the information gap between themselves and investors, so that firm-specific signals can be effectively incorporated into prices.

Corporate governance regulators and designers are also advised, in light of the ineffective contingent and independent role of ownership structure, to prioritize the design of complementary monitoring mechanisms. Board independence and expertise, the establishment and activation of specialized committees, particularly audit committees, and the implementation of compensation systems based on long-term performance and non-financial indicators are among the tools that can improve the quality of market information and, consequently, the degree of stock price synchronicity by disciplining managerial information behavior and aligning managers' interests with the stable interests of investors. These mechanisms can provide the necessary missing role in complementing ownership structure and create conditions under which managerial ability can be translated into the informational content of prices.

Finally, given the statistical significance of financial leverage and the book-to-market ratio in explaining stock price synchronicity, analysts, investors, and decision-makers in this field are advised to incorporate structural firm characteristics, such as debt level and growth opportunities, into their evaluation framework when interpreting the extent to which security returns move in tandem with market returns. These factors influence financial risk and the distinctiveness of firm-specific information, thereby affecting the intensity of price co-movement with market trends. Understanding such mechanisms can help market participants attribute part of the simultaneous fluctuations in returns not merely to general market factors but also to firm-specific characteristics, thereby improving the precision of their analyses and investment decisions.

Research Suggestions for Future Studies

1) Examining the moderating effects of different types of institutional shareholders, such as pension funds versus banks, due to differences in their monitoring incentives.
2) Using alternative measures of managerial ability and examining its relationship with qualitative corporate governance variables.
3) Investigating the interactive effects of other firm characteristics, such as profitability or

volatility, on the relationship between managerial ability and stock price synchronicity.

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