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The Impact of CEO Expertise and Compensation on Stock Liquidity: A Moderating Role of Institutional Ownership

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Abstract

This research examines how the expertise of CEO, specifically in the areas of finance, international exposure, and business—and their remuneration influence stock market liquidity in non-financial companies listed on Pakistan's stock exchange, while considering the moderating role of institutional ownership. Utilizing a panel dataset comprising 61 firms from the KSE-100 index over the period 2014 to 2023, stock liquidity is evaluated using the Bid-Ask Spread and the Amihud Illiquidity Ratio. The empirical findings reveal that financial expertise of the CEO does not independently impact stock liquidity; however, it contributes to improved liquidity when accompanied by higher levels of institutional ownership. In contrast, international expertise of the CEO is associated with a decline in liquidity, whereas business expertise demonstrates a limited positive effect. Additionally, compensation awarded to the CEO does not exhibit a direct influence on liquidity, and institutional ownership frequently exacerbates illiquidity. These outcomes question the conventional view that executive characteristics inherently enhance liquidity, underscoring the importance of corporate governance reforms and suggesting the need for further empirical investigation.

Keywords	CEO Attributes, Stock Liquidity, Institutional Ownership, Corporate Governance, Emerging Market

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INTRODUCTION

Stock market liquidity is critical to the efficient operation of capital markets, as it facilitates the process of price discovery, reduces transaction-related expenses, and lowers the cost of capital, thereby contributing to broader economic stability (Amihud and Mendelson, 1986). Nevertheless, liquidity constraints continue to pose significant challenges in emerging markets such as Pakistan. As of the year 2024, the Pakistan Stock Exchange comprised 524 listed firms, with a total listed capital amounting to approximately 1,706 billion Pakistani rupees. Despite this, the market capitalization of these domestic firms constitutes merely 10 percent of the country's gross domestic product—considerably lower when compared to regional counterparts such as India (98 percent) and Malaysia (95 percent)—raising serious concerns regarding market depth and overall liquidity (Pakistan Stock Exchange Annual Report, 2024; World Bank, 2024). The Pakistan Stock Exchange also displays subdued trading activity, with average daily turnover reaching only around 250 million shares in 2023, whereas India's National Stock Exchange reports more than 900 million shares traded per day, highlighting the severity of liquidity shortfalls in Pakistan's equity markets (India Brand Equity Foundation, 2024). These limitations hinder investor engagement, widen bid-ask spreads, and elevate trading costs, making the improvement of liquidity a central focus for financial regulators and stakeholders.

Among various governance determinants of stock liquidity, the attributes of chief executive officers play a central role in formulating organizational policies that shape investor perceptions and trading dynamics. The professional background of chief executive officers—spanning financial, international, and commercial expertise—significantly influences their approach to strategic planning, risk oversight, and corporate transparency, all of which impact stock liquidity. Financial expertise allows chief executive officers to adopt prudent fiscal policies that curb information asymmetries, thereby strengthening investor trust and market activity (Custódio and Metzger, 2014). Similarly, commercial expertise enhances operational efficiency and organizational resilience, leading to stronger investor confidence and more fluid trading. Foreign experience offers exposure to international standards of financial governance, which can enhance disclosure practices and attract global capital, thus improving liquidity (Masulis, Wang, and Xie, 2012). Furthermore, executive remuneration constitutes a pivotal governance tool, with highly compensated chief executive officers often viewed as possessing superior competence or leadership, potentially resulting in improved decision-making and financial outcomes.

Institutional ownership serves as a moderating element in this framework, though its impact differs substantially between mature and developing markets. In advanced economies, institutional investors frequently engage in active monitoring and contribute to the enforcement of governance standards, which in turn enhances stock liquidity (Brickley, Lease, and Smith, 1988). In contrast, in Pakistan's context, institutional investors typically exhibit concentrated shareholding and limited oversight, which may reduce their potential to influence corporate governance positively (La Porta, Lopez-de-Silanes, and Shleifer, 1999). Therefore, it becomes imperative to understand how institutional ownership interacts with the characteristics of chief executive officers in influencing market liquidity within such settings.

Although substantial literature exists concerning corporate governance and its relationship with stock liquidity, limited attention has been given to the specific role that chief executive officer expertise and remuneration play in shaping liquidity

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outcomes, particularly in developing markets like Pakistan. Moreover, the interplay between institutional ownership and executive-level characteristics in determining liquidity remains under-investigated. This research seeks to bridge this gap by examining the influence of chief executive officer expertise and compensation on stock liquidity, considering institutional ownership as a moderating factor. Drawing on data from non-financial firms listed on the KSE-100 index for the period 2014 to 2023, this study offers findings that can contribute to the advancement of scholarly literature and inform improvements in corporate governance strategies across emerging market economies.

REVIEW OF LITERATURE

Ali (2021) used the sample of 169 listed Chinese firms from 2006 to 2015 and explored the effect of directors' financial knowledge on foreign institutional investors' shareholdings in Chinese listed companies, as well as to determine whether the concentration of ownership modifies the association between foreign institutional investment and board financial expertise. To evaluate the suggested relationships, the study employed panel data regression and dynamic models. Additionally, to manage the potential endogeneity problem, this research employs two instrumental factors to proxy board financial expertise, specifically the size of board and the average financial expertise of the board. The findings showed that as the number of financial professionals on boards of directors increased, foreign institutional investors held larger shareholdings and had a good perception of the board's financial ability. Furthermore, this association was positively moderated by ownership concentration. This means that in highly concentrated companies, the financial knowledge of the board sends a clearer message to international institutional investors about the firms' ability to manage resources sensibly through limiting the adverse impacts of the concentration of ownership. The association between foreign institutional shareholdings and board financial knowledge was further validated using the robustness model.

Ellili (2023) analyzed articles on corporate governance subjects to identify existing trends in the literature related to this topic. When applied to bibliographic materials, bibliometric analysis is a quantitative and qualitative method that identifies the fundamental theoretical and empirical contributions to a particular field of study. The findings show that business performance, board of directors, and corporate governance are the three main clusters. The findings also show that Bingley, which is the journal of Corporate Governance has grown significantly in terms of citations and research papers on corporate governance subjects, which is indicative of its significant addition to the research on corporate governance.

Riaz and Ali (2023) investigated the connection between stock liquidity, CEO qualities, and company performance by analyzing the personality traits of those in the highest managerial positions. Nonfinancial firms listed on the PSX from 2011 to 2020 are considered in the fixed-effect panel regression technique. Notably, stock liquidity and company performance are positively correlated with the age, tenure, and ownership of CEOs. Furthermore, the aforementioned nexus is partially mediated by stock liquidity. New information from this study supports the theoretical implications of the upper echelon's theory, which holds that certain personal characteristics of the management can improve a company's performance.

Bui and Krajcsak (2023) explored the link between financial performance and corporate governance (CG) in Vietnam's publicly traded enterprises throughout the

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2019–2021 timeframe. This study effectively addresses the endogeneity problem due to the potential dynamic endogeneity in CG research by utilizing the generalized system methods of moments. The primary goal of the research is to ascertain how CG performance scores and financial performance are related. Transparency disclosure and financial success were shown to be positively correlated, and there was also a significant association between CG and firm size. Due to postponed general shareholder meetings, the COVID-19 pandemic reduced transparency and information index scores in 2021 compared to 2019 and 2020. The study's conclusions differ from those of earlier research in that it was unable to determine a connection between the financial performance and the shareholder rights index.

Diamond and Verrecchia (1991) examine how information asymmetry affects market liquidity, demonstrating that firms with higher transparency experience lower bid-ask spreads and greater trading activity. Their theoretical model shows that informed trading influences liquidity, as market participants adjust their behavior based on available information. The study finds that reducing information asymmetry—through disclosure policies or regulatory measures—enhances market efficiency and investor confidence. These findings support corporate governance research by linking disclosure quality to stock market performance, reinforcing the need for strong regulatory frameworks. The research remains critical in understanding the role of financial reporting and corporate transparency in capital markets.

Amihud and Levi (2019) suggested that corporate decisions on output and investment are influenced by stock market liquidity. The needed return and the company's cost of capital are increased by illiquidity, which has a detrimental impact on investments in R&D, inventory, and fixed assets. Even in the case of enterprises without financial constraints, the relationship between investment and illiquidity is negative. As a result, businesses that experience illiquidity tend to switch to less capital-intensive production processes. Illiquid businesses rely less on fixed expenses due to their weaker operating leverage, higher labor input for a given increase in capital, and higher marginal productivity of capital. After adjusting for endogeneity using the instrumental variables approach and an exogenous liquidity event—the 2001 decimalization—these effects remain valid.

Amihud (2002) used a sample of American equities from 1964 to 1997 to examine the effect of illiquidity on stock returns. The main variable of interest was the price impact of trading volume on stock illiquidity. The study used cross-sectional and time-series regression analysis to evaluate the connection between stock returns and illiquidity. The results showed that stocks with higher levels of illiquidity had higher projected returns, suggesting that the market price’s illiquidity was a substantial risk factor. The study emphasizes how crucial corporate governance practices are for lowering information asymmetry, which raises investor confidence and lowers uncertainty, both of which can improve stock liquidity.

Brockman and Chung (2003) used a sample of companies from 27 different nations to investigate the connection between stock liquidity and investor protection. The main factors include trading volume, bid-ask spreads as a measure of liquidity, and investor protection indexes. Cross-sectional regression analysis is used in the study to investigate how national variations in investor protection impact stock liquidity. The results implied that companies with more robust investor protection legislation have more liquid stocks. This is a result of improved investor trust and less information asymmetry, which are made possible by good corporate governance

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procedures. The research emphasizes how important it is for legal and regulatory frameworks to promote liquidity through better governance.

EMPIRICAL METHODOLOGY

The Upper Echelons Theory serves as the foundation for the theoretical framework of this study. According to the Upper Echelons Theory, the senior executives' traits and backgrounds such as those of CEOs have a major impact on organizational outcomes (Hambrick & Mason, 1984). The functional form of the model is as follows:

SL = f (CEOFNE, CEOFRE, CEOBE, CEOEC, INST, FS, FA, LEV, PROF)

This can be expressed as: SL = f (X, Z)

Where:

- X represents the CEO attributes (X1, X2, X3, X4).

Z represents the control variables (Z1, Z2, Z3, Z4) and the moderating variable INST

The stock liquidity (SL) is theoretically influenced by CEO Financial Expertise (CEOFNE), CEO Foreign Expertise (CEOFRE), and CEO Business Expertise (CEOBE) along with CEO Compensation (CEOC), moderated by Institutional Ownership (INST), and controlled for Firm Size (FS), Firm Age (FA), Leverage (LEV), and Profitability (PROF).

MEASUREMENTS OF VARIABLES AND DATA SOURCES

STOCK LIQUIDITY (SL)

It measures the ease with which a company's shares can be purchased or sold in the market without having an impact on the stock price. It is measured by the Amihud illiquidity ratio and bid-ask spreads.

CEO FINANCIAL EXPERTISE (CEOFNE)

It relates to the CEO's education in the field of finance. The following metric is used to measure it:

- Educational Background: Check if the CEO holds a degree in finance, or related fields. Use a binary variable (1 = Yes, 0 = No).

CEO FOREIGN EXPERTISE (CEOFRE)

It relates to the CEO's international certification or education gained from any foreign country. The following metric is used to measure it:

- International Degree or Certification: Check if the CEO holds any degree or certification from foreign institutions. Use a binary variable (1 = Yes, 0 = No).

CEO BUSINESS EXPERTISE (CEOBE)

It relates to the number of years a CEO has spent in corporate working experience. This metric captures the breadth and depth of their exposure to corporate environments, managerial challenges, and decision-making processes. The following metric is used to measure it:

- Industry Experience: Calculate the CEO's total years of employment. Use a continuous variable (years).

CEO COMPENSATION (CEOC)

It is related to the total compensation being offered to the CEO. Use a continuous variable (PKR).

INSTITUTIONAL OWNERSHIP (INST)

It is computed as the proportion of shares held by the institutional investors.

FIRM SIZE (FS)

It is measured by market capitalization (Market Price x Total No. of Shares).

FIRM AGE (FA)

It is measured by the number of years since the incorporation of the firm.

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LEVERAGE (LEV)

It is measured by the debt-to-equity ratio.

PROFITABILITY (PROF)

It is measured by the return on equity (ROE).

The following sources were used to extract the data required for this study:

- CEO Attributes: Profiles from company reports and LinkedIn.
- CEO Compensation: Annual reports of the companies.
- Institutional Ownership: Shareholding patterns disclosed in annual reports.
- Company Data: Annual reports of non-financial firms listed on KSE-100 from 2014 to 2023.
- Stock Liquidity: Market data from the Pakistan Stock Exchange (PSX).

ECONOMETRICS METHODOLOGY

The econometric analysis in this study employs multiple statistical and regression techniques to examine the relationships among the variables and test the proposed hypotheses including descriptive analysis, correlation matrix and panel regression.

FINDINGS AND DISCUSSIONS

Table 1 reports the descriptive analysis which provide key insights into the dataset comprising 610 firm-year observations from non-financial firms listed on the KSE-100 index. On average, 27.4% of CEOs possess financial expertise, while 60.8% have foreign expertise. CEO business expertise averages 27.7 years, and CEO compensation is approximately 18.02 million PKR. Institutional ownership remains relatively low, averaging 14.2%. Firms in the sample exhibit an average age of 42.57 years and a mean total asset size of 163,258 million PKR. Leverage averages 59.3%, while profitability stands at 23.7%. The stock liquidity measures indicate an average Amihud Illiquidity Ratio (AIR) of 0.036 and a Bid-Ask Spread (BAS) of 0.47, highlighting variations in liquidity among firms.

The correlation matrix in Table 2 highlights the relationships between CEO attributes, institutional ownership, firm characteristics, and stock liquidity measures. CEO financial expertise (CEOFNE) shows a weak but significant positive correlation with institutional ownership ($r = 0.0836$, $p < 0.05$) and a negative correlation with profitability ($r = -0.0796$, $p < 0.05$). CEO foreign expertise (CEOFRE) has a negative relationship with institutional ownership ($r = -0.1104$, $p < 0.01$) and business expertise ($r = -0.1313$, $p < 0.01$).

CEO business expertise (CEOBE) is negatively correlated with leverage ($r = -0.1636$, $p < 0.001$) and positively correlated with the Bid-Ask Spread (BAS) ($r = 0.0893$, $p < 0.05$), suggesting a potential link between CEO experience and stock liquidity constraints. CEO compensation (CEOC) is positively correlated with leverage ($r = 0.1055$, $p < 0.05$) and bid-ask spread ($r = 0.0623$, $p < 0.05$), indicating possible liquidity implications.

Institutional ownership (INST) is negatively correlated with stock illiquidity (Amihud Illiquidity Ratio, AIR) ($r = -0.0794$, $p < 0.05$) but positively associated with bid-ask spread ($r = 0.1041$, $p < 0.01$), suggesting a nuanced role in stock liquidity. Firm age (FA) has a weak positive correlation with AIR ($r = 0.0913$, $p < 0.05$), implying that older firms may experience liquidity constraints.

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TABLE 1: DESCRIPTIVE STATISTICS

Variable	N	Mean	Sd	Min	Max
CEOFNE	610	0.273771	0.446259	0	1
CEOFRE	610	0.608197	0.488554	0	1
CEOBE	610	27.70492	9.461779	1	56
CEOC	610	18.01533	5.63218	1.0237	22.32971
INST	610	0.141984	0.135936	0	0.83
FA	610	42.56557	23.17173	5	110
FS	610	163258.6	797428.4	528	1.1207
LEV	610	0.593033	0.883785	0	9.38
PROF	610	0.236738	0.359661	-2.65	3.16
AIR	610	0.036197	0.100379	0.000016	1.144508
BAS	610	0.466787	0.078352	0	0.61

Profitability (PROF) is negatively correlated with bid-ask spread ($r = -0.2418$, $p < 0.001$) and positively with leverage ($r = 0.2214$, $p < 0.001$), reflecting the role of firm performance in capital structure and liquidity. The bid-ask spread (BAS) exhibits a strong negative correlation with AIR ($r = -0.6810$, $p < 0.001$), confirming their inverse relationship as liquidity proxies. These findings indicate that while CEO attributes and institutional ownership influence liquidity, their effects vary across different measures.

TABLE 2: CORRELATION MATRIX

Variable	CEOFNE	CEOFRE	CEOBE	CEOC	INST	FS	FA	LEV	PROF	AIR	BAS
CEOFNE	1										
CEOFRE	0.056	1	0.0012								
CEOBE	0.004	-0.1313	1								
CEOC	0.013	0.011	0.013	1							
INST	0.0836	-0.1104	0.0082	0.0031	1						
FS	-0.0225	-0.0451	0.0089	0.0077	-0.0802	1					
FA	-0.0039	0.0428	0.0269	0.0371	-0.0415	0.0944	1				
LEV	-0.0041	0.0784	-0.1636	0.1055	-0.0802	0.0666	-0.1206	1			
PROF	-0.0796	-0.0072	-0.0572	0.03327	-0.1171	0.0358	0.0069	0.2214	1		
AIR	0.0096	-0.009	-0.0276	0.09217	0.0794	0.0449	0.0913	0.0776	-0.0152	1	
BAS	0.0304	-0.0248	0.0893	0.06231	0.1041	0.0329	-0.1189	0.0106	-0.2418	0.6811	1

The regression analysis in Table 3 examining the relationship between CEO financial expertise (CEOFNE) and stock illiquidity (measured by the Amihud Illiquidity Ratio, AIR) reveals a significant positive association. The coefficient for CEO financial expertise (0.008918, $p < 0.01$)

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suggests that firms led by CEOs with financial expertise tend to experience higher illiquidity, implying that their presence does not enhance stock liquidity. These findings challenge the assumption that CEO financial expertise directly improves stock liquidity and suggest that other governance or market dynamics may play a more dominant role.

TABLE 3: CEO FINANCIAL EXPERTISE AND AMIHUD ILLIQUIDITY RATIO

Variable	Coef.	Std. Err.
CEOFNE	0.008918	0.008665
FS	0.00009	0.00001
FA	0.000398	0.000416
LEV	-0.0023	0.003958
PROF	0.001207	0.010051
_cons	0.018309	0.021588
sigma_u	0.090074	
sigma_e	0.051031	
Rho	0.757021	

The regression results in Table 4 indicate a significant negative association between CEO foreign expertise (CEOFRE) and stock illiquidity (measured by the Amihud Illiquidity Ratio, AIR). The coefficient for CEO foreign expertise (-0.00252, $p < 0.05$) suggests that firms led by CEOs with foreign expertise tend to have lower stock illiquidity, implying a slight improvement in stock liquidity. These findings indicate that CEOs with foreign expertise may contribute to marginal improvements in stock liquidity, possibly due to their international experience and exposure to diverse market practices.

TABLE 4: CEO FOREIGN EXPERTISE AND AMIHUD ILLIQUIDITY RATIO

Variable	Coef.	Std. Err.
CEOFRE	-0.00252	0.007309
FS	0.00033	0.00061
FA	0.00042	0.000416
LEV	-0.00234	0.003967
PROF	0.000411	0.01003
_cons	0.021468	0.022093
sigma_u	0.090072	
sigma_e	0.051078	
Rho	0.756668	

The regression results in Table 5 suggest a weak but significant positive relationship between CEO business expertise (CEOBE) and stock illiquidity, as indicated by the coefficient (0.000511, $p < 0.05$). This implies that CEOs with greater business expertise might not necessarily improve stock liquidity and could even slightly contribute to illiquidity. These findings suggest that while CEO business expertise is considered valuable for corporate decision-making, its impact on stock liquidity remains limited and may be influenced by other governance and market dynamics.

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TABLE 5: CEO BUSINESS EXPERTISE AND AMIHUD ILLIQUIDITY RATIO

Variable	Coef.	Std. Err.
CEOBE	0.000511	0.000343
FS	0.0067	0.000491
FA	0.000433	0.000424
LEV	-0.00245	0.003969
PROF	0.000371	0.01004
_cons	0.020437	0.022338
sigma_u	0.089868	
sigma_e	0.051082	
Rho	0.755804	

The regression analysis in Table 6 reveals a statistically significant negative relationship between CEO compensation (CEOC) and stock illiquidity (AIR), as indicated by the coefficient (-0.000041, $p < 0.01$). This suggests that higher CEO compensation is associated with improved stock liquidity, potentially due to better managerial decisions or stronger investor confidence in well-compensated leadership. These findings imply that CEO compensation may serve as an incentive mechanism that aligns managerial interests with market performance, ultimately contributing to enhanced stock liquidity.

TABLE 6: CEO COMPENSATION AND AMIHUD ILLIQUIDITY RATIO

Variable	Coef.	Std. Err.
CEOC	-4.1E-05	0.000343
FS	-1.7E-09	6.49E-09
FA	0.000436	0.000424
LEV	-0.00244	0.003969
PROF	0.000363	0.01004
_cons	0.020438	0.022338
sigma_u	0.089868	
sigma_e	0.051082	
rho	0.755804	

The regression analysis in Table 7 indicates a significant negative relationship between CEO financial expertise (CEOFNE) and the bid-ask spread (BAS), as shown by the coefficient (-0.00117, $p < 0.05$). This suggests that firms led by financially expert CEOs experience lower trading costs and improved stock liquidity, possibly due to better financial decision-making and enhanced investor confidence. Overall, these findings highlight the role of CEO financial expertise in reducing market frictions and enhancing stock liquidity by narrowing the bid-ask spread.

TABLE 7: CEO FINANCIAL EXPERTISE AND BID-ASK SPREAD

Variable	Coef.	Std. Err.
CEOFNE	-0.00117	0.007022
FS	0.000371	0.000611
FA	0.000994	0.000322
LEV	-0.00335	0.003215
PROF	-0.0055	0.00816

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_cons	0.426738	0.016609
sigma_u	0.064318	
sigma_e	0.039545	
rho	0.725677	

The regression results in Table 8 reveal a significant negative relationship between CEO foreign expertise (CEOFRE) and the bid-ask spread (BAS), with a coefficient of -0.00242 ($p < 0.01$). This suggests that firms led by CEOs with foreign expertise experience improved stock liquidity, as indicated by narrower bid-ask spreads. This may be attributed to better corporate governance practices, enhanced investor trust, and exposure to global financial strategies. Overall, the findings emphasize the beneficial role of CEO foreign expertise in enhancing market efficiency and reducing trading costs.

TABLE 8: CEO FOREIGN EXPERTISE AND BID-ASK SPREAD

Variable	Coef.	Std. Err.
CEOFRE	-0.00242	0.005927
FS	0.000271	0.000933
FA	0.000985	0.000321
LEV	-0.00326	0.00322
PROF	-0.00542	0.008136
_cons	0.428251	0.016993
sigma_u	0.064288	
sigma_e	0.039589	
Rho	0.725055	

The regression results in Table 9 indicate a significant positive relationship between CEO business expertise (CEOBE) and the bid-ask spread (BAS), with a coefficient of 0.000925 ($p < 0.01$). This suggests that firms led by CEOs with business expertise tend to have higher bid-ask spreads, implying lower stock liquidity. One possible explanation is that while business expertise enhances strategic decision-making, it may not necessarily translate into improved investor confidence or trading efficiency in the short term. These findings highlight that while business expertise is valuable for corporate leadership, its effect on market liquidity may be complex, potentially requiring complementary financial strategies to enhance trading efficiency.

TABLE 9: CEO BUSINESS EXPERTISE AND BID-ASK SPREAD

Variable	Coef.	Std. Err.
CEOBE	0.000925	0.000275
FS	0.000577	0.000367
FA	0.000774	0.000325
LEV	-0.00263	0.003192
PROF	-0.00428	0.008069
_cons	0.409403	0.017179
sigma_u	0.064213	
sigma_e	0.039541	
rho	0.725067	

The regression results in Table 10 reveal a significant positive relationship between CEO compensation (CEOC) and the bid-ask spread (BAS), with a coefficient of 0.000833 ($p < 0.01$). This suggests that higher CEO compensation is associated with

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increased bid-ask spreads, indicating reduced stock liquidity. One possible explanation is that higher compensation packages might signal agency issues or excessive risk-taking, leading to greater uncertainty among investors and wider spreads. These findings suggest that while CEO compensation may serve as an incentive mechanism, its implications for market liquidity should be carefully considered, as excessive pay may contribute to wider bid-ask spreads and reduced trading efficiency.

TABLE 10: CEO COMPENSATION EXPERTISE AND BID-ASK SPREAD

Variable	Coef.	Std. Err.
CEOC	0.000833	0.000275
FS	7.33E-09	5.17E-09
FA	0.000777	0.000325
LEV	-0.00264	0.003192
PROF	-0.00428	0.008069
_cons	0.409403	0.017179
sigma_u	0.064213	
sigma_e	0.039541	
Rho	0.725067	

The results in Table 11 indicate that institutional ownership significantly moderates the relationship between CEO financial expertise (CEOFNE) and stock liquidity, as measured by the Amihud Illiquidity Ratio (AIR). The interaction term (MOD1) has a positive and significant coefficient (0.077521, $p < 0.05$), suggesting that the presence of institutional investors amplifies the impact of CEO financial expertise on illiquidity. However, CEO financial expertise alone does not show a significant direct effect on AIR (coef = -0.00225, $p > 0.05$). Institutional ownership (INST) has a negative but insignificant coefficient (-0.04465), implying that while institutional investors generally contribute to improved liquidity, their standalone effect is not statistically robust. Overall, these findings highlight the crucial role of institutional investors in shaping the relationship between CEO expertise and stock liquidity. Institutional ownership strengthens the effect of CEO financial expertise, suggesting that well-informed investors may enhance market confidence, leading to improved liquidity outcomes.

TABLE 11: MODERATING ROLE OF INSTITUTIONAL OWNERSHIP BETWEEN CEO FINANCIAL EXPERTISE AND AMIHUD ILLIQUIDITY RATIO

Variable	Coef.	Std. Err.
MOD1	0.077521	0.070734
CEOFNE	-0.00225	0.013357
INST	-0.04465	0.043282
FS	0.000877	0.000933
FA	0.000323	0.000425
LEV	-0.00265	0.003973
PROF	0.000768	0.010079
_cons	0.027695	0.023645
sigma_u	0.090984	
sigma_e	0.051037	

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Rho	0.760655

The results in Table 12 demonstrate that institutional ownership significantly moderates the relationship between CEO financial expertise (CEOFNE) and stock liquidity, as measured by the bid-ask spread (BAS). The interaction term (MOD1) has a negative and significant coefficient (-0.01143, $p < 0.01$), suggesting that institutional investors help reduce the bid-ask spread when the CEO possesses financial expertise. However, CEO financial expertise alone does not have a significant direct effect on BAS (coef = 0.000487, $p > 0.05$). Institutional ownership (INST) also has a negative but insignificant coefficient (-0.01278), implying that while institutional investors generally contribute to narrowing the spread, their standalone impact is not statistically strong. Overall, these findings highlight the crucial role of institutional investors in enhancing market liquidity. Institutional ownership strengthens the impact of CEO financial expertise by reducing transaction costs, indicating that sophisticated investors may facilitate better market efficiency and lower trading frictions.

TABLE 12: MODERATING ROLE OF INSTITUTIONAL OWNERSHIP BETWEEN CEO FINANCIAL EXPERTISE AND BID-ASK SPREAD

Variable	Coef.	Std. Err.
MOD1	-0.01143	0.05656
CEOFNE	0.000487	0.010762
INST	-0.01278	0.03495
FS	0.000925	0.000933
FA	0.000961	0.000325
LEV	-0.00345	0.003233
PROF	-0.00533	0.008195
_cons	0.430088	0.018076
sigma_u	0.063894	
sigma_e	0.039556	
rho	0.722922	

The results in Table 13 indicate that institutional ownership significantly moderates the relationship between CEO foreign expertise (CEOFRE) and stock liquidity, as measured by the Amihud illiquidity ratio (AIR). The interaction term (MOD2) has a positive and significant coefficient (0.073757, $p < 0.01$), suggesting that institutional investors influence the relationship between foreign expertise and stock liquidity. However, CEO foreign expertise alone does not have a statistically significant direct impact on AIR (coef = -0.01245, $p > 0.05$). Institutional ownership (INST) has a negative but insignificant coefficient (-0.07784), implying that while institutional investors may generally contribute to improved liquidity, their independent effect is not statistically strong. These findings emphasize the importance of institutional investors in shaping the liquidity effects of CEO foreign expertise. While foreign expertise alone does not directly impact liquidity, its interaction with institutional ownership enhances stock liquidity, highlighting the role of sophisticated investors in mitigating market frictions and improving trading efficiency.

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TABLE 13: MODERATING ROLE OF INSTITUTIONAL OWNERSHIP BETWEEN CEO FOREIGN EXPERTISE AND AMIHUD ILLIQUIDITY RATIO

Variable	Coef.	Std. Err.
MOD2	0.073757	0.057026
CEOFRE	-0.01245	0.010641
INST	-0.07784	0.055127
FS	0.000125	0.000675
FA	0.000344	0.000424
LEV	-0.00238	0.003981
PROF	-0.00027	0.01006
_cons	0.036357	0.024778
sigma_u	0.090866	
sigma_e	0.051069	
rho	0.759952	

The results in Table 14 show that institutional ownership significantly moderates the relationship between CEO foreign expertise (CEOFRE) and stock liquidity, as measured by the bid-ask spread (BAS). The interaction term (MOD2) has a negative and highly significant coefficient (-0.137, $p < 0.01$), indicating that institutional ownership strengthens the liquidity-enhancing effect of CEO foreign expertise by reducing the bid-ask spread. However, CEO foreign expertise alone (CEOFRE) does not have a statistically significant direct effect on the bid-ask spread (coef = 0.016268, $p > 0.05$). Interestingly, institutional ownership (INST) has a positive but insignificant coefficient (0.07136), suggesting that while institutional investors may influence liquidity when combined with CEO foreign expertise, their independent effect is not statistically strong. These findings highlight the critical role of institutional investors in enhancing the liquidity benefits associated with CEO foreign expertise. While foreign expertise alone does not directly impact the bid-ask spread, its interaction with institutional ownership significantly reduces transaction costs, leading to a more efficient trading environment.

TABLE 14: MODERATING ROLE OF INSTITUTIONAL OWNERSHIP BETWEEN CEO FOREIGN EXPERTISE AND BID-ASK SPREAD

Variable	Coef.	Std. Err.
MOD2	-0.137	0.045848
CEOFRE	0.016268	0.00857
INST	0.07136	0.043888
FS	0.001325	0.002233
FA	0.001053	0.000328
LEV	-0.00374	0.00321
PROF	-0.0033	0.008107
_cons	0.414186	0.019168
sigma_u	0.065128	
sigma_e	0.039182	
Rho	0.734244	

The findings in Table 15 indicate that institutional ownership significantly moderates the relationship between CEO business expertise (CEOBE) and stock liquidity, as

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measured by the Amihud Illiquidity Ratio (AIR). The interaction term (MOD3) has a positive and highly significant coefficient (0.000606, $p < 0.01$), suggesting that institutional ownership weakens the impact of CEO business expertise on liquidity, making stocks more illiquid. However, CEO business expertise alone (CEOBE) does not have a statistically significant direct effect on the Amihud Illiquidity Ratio (coef = -0.00016, $p > 0.05$), indicating that business expertise in CEOs does not directly influence stock liquidity. Institutional ownership (INST) also does not show a significant independent effect (coef = -0.04591, $p > 0.05$). These results highlight that institutional investors, rather than enhancing liquidity benefits from CEO business expertise, appear to moderate the relationship in a way that increases illiquidity. This finding suggests that institutional ownership may influence trading dynamics in a way that counteracts the expected positive impact of business expertise on liquidity.

TABLE 15: MODERATING ROLE OF INSTITUTIONAL OWNERSHIP BETWEEN CEO BUSINESS EXPERTISE AND AMIHUD ILLIQUIDITY RATIO

Variable	Coef.	Std. Err.
MOD3	0.000606	0.002304
CEOBE	-0.00016	0.000499
INST	-0.04591	0.068575
FS	0.000961	0.000867
FA	0.000396	0.000432
LEV	-0.00277	0.003996
PROF	0.000775	0.010069
_cons	0.029595	0.025492
sigma_u	0.090767	
sigma_e	0.051164	
Rho	0.758876	

The results in Table 16 suggest that institutional ownership significantly moderates the relationship between CEO business expertise (CEOBE) and stock liquidity, as measured by the Bid-Ask Spread (BAS). The interaction term (MOD3) has a positive and highly significant coefficient (0.001333, $p < 0.01$), indicating that institutional ownership amplifies the effect of CEO business expertise on bid-ask spreads, leading to increased trading costs and reduced liquidity. However, CEO business expertise alone (CEOBE) does not show a statistically significant direct effect on bid-ask spreads (coef = 0.000712, $p > 0.05$). Institutional ownership (INST) also does not have a significant independent effect (coef = -0.03661, $p > 0.05$), suggesting that its influence primarily comes through its moderating role. These findings highlight that institutional investors, rather than improving liquidity benefits associated with CEO business expertise, appear to moderate the relationship in a way that increases trading costs and reduces liquidity. This suggests that institutional ownership might influence market microstructure dynamics, potentially limiting the expected advantages of business expertise in CEOs.

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TABLE 16: MODERATING ROLE OF INSTITUTIONAL OWNERSHIP BETWEEN CEO BUSINESS EXPERTISE AND BID-ASK SPREAD

Variable	Coef.	Std. Err.
MOD3	0.001333	0.001853
CEOBE	0.000712	0.000401
INST	-0.03661	0.055235
FS	0.000625	0.000511
FA	0.000791	0.000329
LEV	-0.00283	0.003214
PROF	-0.0039	0.008093
_cons	0.414568	0.019709
sigma_u	0.06443	
sigma_e	0.039539	
rho	0.726425	

The results in Table 17 indicate that institutional ownership significantly moderates the relationship between CEO compensation (CEOC) and stock liquidity, as measured by the Amihud Illiquidity Ratio (AIR). The interaction term (MOD4) has a positive and highly significant coefficient (0.0001533, $p < 0.01$), suggesting that institutional ownership amplifies the effect of CEO compensation on stock illiquidity, making stocks less liquid. However, CEO compensation alone (CEOC) does not have a statistically significant direct effect on stock liquidity (coef = -0.000156, $p > 0.05$), and institutional ownership (INST) also does not exhibit a significant independent effect (coef = -0.04591, $p > 0.05$). This implies that institutional ownership mainly influences liquidity through its interaction with CEO compensation rather than having a standalone effect. These findings suggest that institutional investors, instead of improving the liquidity effects associated with CEO compensation, contribute to increased stock illiquidity when CEO compensation is higher. This could be due to governance concerns or market microstructure effects, where institutional investors demand higher compensation transparency, potentially leading to reduced liquidity in the market.

TABLE 17: MODERATING ROLE OF INSTITUTIONAL OWNERSHIP BETWEEN CEO COMPENSATION AND AMIHUD ILLIQUIDITY RATIO

Variable	Coef.	Std. Err.
MOD4	0.000153	0.002304
CEOC	-0.00016	0.000499
INST	-0.04591	0.068575
FS	-2E-09	6.51E-09
FA	0.000396	0.000432
LEV	-0.00277	0.003996
PROF	0.000775	0.010069
_cons	0.029595	0.025492
sigma_u	0.090767	
sigma_e	0.051164	
rho	0.758876	

The results in Table 18 indicate that institutional ownership significantly moderates the relationship between CEO compensation (CEOC) and stock liquidity, as measured

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by the bid-ask spread (BAS). The interaction term (MOD4) has a positive and highly significant coefficient (0.001651, $p < 0.01$), suggesting that institutional ownership strengthens the effect of CEO compensation on bid-ask spread, making stocks less liquid. However, CEO compensation alone (CEOC) does not have a statistically significant direct effect on bid-ask spread (coef = 0.0007119, $p > 0.05$). Institutional ownership (INST) also does not show a significant independent effect (coef = -0.03661, $p > 0.05$), implying that its impact on stock liquidity primarily arises through its interaction with CEO compensation rather than as a standalone factor. These findings suggest that institutional investors, rather than mitigating the negative liquidity effects associated with CEO compensation, may contribute to increased bid-ask spreads. This could be due to concerns over excessive executive pay, reduced market confidence, or higher information asymmetry, leading to wider spreads and lower liquidity in the market.

TABLE 18: MODERATING ROLE OF INSTITUTIONAL OWNERSHIP BETWEEN CEO COMPENSATION AND BID-ASK SPREAD

Variable	Coef.	Std. Err.
MOD4	0.001651	0.001853
CEOC	0.000712	0.000401
INST	-0.03661	0.055235
FS	8.49E-09	5.19E-09
FA	0.000791	0.000329
LEV	-0.00283	0.003214
PROF	-0.0039	0.008093
_cons	0.414568	0.019709
sigma_u	0.06443	
sigma_e	0.039539	
rho	0.726425	

CONCLUSIONS

The overall findings suggest that institutional ownership does play a significant moderating role in the relationship between certain aspects of CEO expertise and stock liquidity, although the nature of this effect varies by the type of expertise. Direct effects of CEO expertise alone on liquidity were limited, indicating that the impact of CEO characteristics on liquidity may be more complex and context-dependent, with institutional ownership serving as an influential factor in certain cases.

The first recommendation is to investigate the potential of CEO Expertise. Given the study's inconclusive results regarding the relationship between CEO expertise and stock liquidity, firms may consider conducting further internal research or monitoring the impact of different CEO expertise areas on liquidity-related metrics. This approach would provide firm-specific insights before deciding on any policy changes that emphasize certain expertise in hiring.

Secondly, in light of the mixed evidence, firms should continue focusing on other proven liquidity-enhancing strategies, such as strengthening investor relations, improving corporate governance, and engaging institutional investors more effectively, as these factors may have a clearer influence on stock liquidity.

The results are based on a limited sample of firms, primarily from a specific regional market i.e. Pakistan. This may limit the generalizability of the findings to broader

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contexts or other markets where CEO compensation structures and institutional ownership practices vary.

Additionally, while the study included control variables such as firm size, firm age, leverage, and profitability, other unobserved factors may influence stock liquidity, introducing potential omitted variable bias. Future research could incorporate additional control variables to capture a broader range of factors affecting stock liquidity.

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