

BOARD ATTRIBUTES, INSTITUTIONAL OWNERSHIP AND FINANCIAL DISTRESS AMONG INSURANCE COMPANIES IN KENYA

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ABSTRACT

The financial wellness of the insurance companies is of vital concern to ensure that there is stability and confidence in the sector. The study aimed to establish how board size, gender board diversity, board expertise and frequency of board meetings influences financial distress of the insurance companies in Kenya and how institutional ownership moderates the relationship. Agency Theory, Upper Echelons Theory, Resource Dependency Theory and the Stewardship Theories were adopted. Longitudinal research design was applied. The research targeted 62 insurance companies in Kenya using secondary data within the scope of 2019-2023. Descriptive statistics and panel data regression techniques were applied in the analysis. The result revealed that board expertise ($\beta = 2.6319$, $p = 0.000$) was the

highest predictor of financial distress, followed by gender diversity ($\beta = 1.2214$, $p=0.002$), board size ($\beta = 0.1048$, $p = 0.001$) and frequency of board meetings ($\beta = 0.0812$, $p = 0.006$). Institutional ownership was found to have a significant positive moderating influence on the relationship. The study recommends that the Insurance Regulatory Authority should consider enhancing the corporate governance regulations. The government and other prudential regulators should formulate policies which aim at recruiting and retaining institutional investors in the Kenyan insurance industry.

Key words: Board Attributes; Board Size; Gender Diversity; Board Expertise; Frequency of Board Meetings; Institutional Ownership; Financial Distress.

INTRODUCTION

International insurance business is among the biggest and most crucial units of the global financial system, where it has a substantial contribution to the risk management, investment, and the economy as a whole (Eckert et al., 2022). Regardless of its massive scale, the industry has been struggling with significant threats, especially those concerning financial turmoil and corporate management (Zeng, 2024). It is a significant crisis to insurance companies all over the world in terms of financial distress. Insurers are affected by financial distress leading to solvency, profitability, and liquidity issues, which could lead to insolvency or a bankruptcy (Isayas, 2021). There has been growing concern on the quality of board governance in insurance companies in an effort to address the challenges. The duties of boards of directors include strategic direction setting, executive performance monitoring, and compliance with regulatory standards (Marashdeh et al., 2021). Nevertheless, boards are not all as effective. The structure and operation of the board itself can have a great effect on how a firm predicts and reacts to financial distress. Research has also

indicated that boards that fail to identify warning signs of financial instability in time are more likely to have boards that are ineffective, which usually involve a lack of industry experience or ineffective oversight mechanisms (Ali et al., 2022; Onyema & Ezeagba, 2023; Lee & Thong, 2023). On the one hand, effective boards of directors can promote transparency, accountability and good risk management practices (Usman & Yahaya, 2023). Consequently, board qualities are becoming highly important in defining financial performance and organizational strength, particularly in a highly regulatory and risk-prone industry such as insurance (Younas et al., 2021). The relationship between financial distress and board characteristics has been given much consideration in developed economies. The research of other countries like United States, United Kingdom and the European Union as a whole demonstrates that the nature of boards in terms of size, diversity, expertise and either high or low frequency of meetings can influence the way companies perform and react towards financial pressure. Although there are findings that support the positive correlation between strong board structures and better financial health, some of the findings show mixed or inconclusive findings (Almashhadani, 2021; Kyere & Ausloos, 2021; Iwasaki et al., 2022).

The African insurance sector is still in its maturity stage. The participation of many countries in the proliferation of insurances is associated with the increased number of middle classes, the improvement of public awareness, and the attempts of governments to give the industry more power (Dawd & Benlagha, 2023). The rate of development however differs on the continent. Such markets as South Africa, Kenya, and Nigeria are more developed, and others remain in the process of establishing rudimentary regulatory and financial frameworks (Horvey et al., 2024). These distinctions have a direct impact on the way boards operate and the ways in which firms cope with financial issues.

Board attributes are the characteristics, structures and qualities of a board of directors that control the effectiveness of the board in managing, supervising an organization (Marashdeh et al., 2021). Al-Zaqeba et al. (2023) noted that the Boards are the core element of corporate governance, and they make the strategic decisions, keep an eye on the management, and safeguard the interests of shareholders and other parties. A board structure and conduct may have a considerable influence on the direction of a firm, its risk management, and overall performance (Usman & Yahaya, 2023). The knowledge of board characteristics enables academics and policy-makers to determine how the corporate results are supported or impeded by the governance structures.

The common board characteristics that are discussed in the governance literature are the size of the board, the gender diversity, the expertise/qualifications of the board members, and the number of board meetings (Habtoor, 2022; Kalia et al., 2023; Githaiga & Kosgei, 2023). The number of board members influences the decision-making process dynamics, whereas a bigger board can provide representation and wider expertise, it is also likely to result in coordination problems (Almashhadani et al., 2022). Gender diversity brings diversity in views and it has been linked to

enhanced ethical management and problem-solving (Eliwa et al., 2023). According to Alam et al. (2025), board expertise would guarantee the possession of the necessary knowledge and experience by the directors to comprehend intricate financial matters and risks unique to the industry. Board meeting frequency demonstrates the extent of the board involvement and interest in the oversight duties (Hossain & Oon, 2022).

Financial distress should be measured in order to diagnose and intervene on time. Models and indicators which are used to measure the financial health of firms are numerous and vary between academics and business professionals. The Altman Z-score is one of the most popular models that include profitability, leverage, liquidity, solvency, and activity ratios into the single predictive index (Destriwanti et al., 2022). A low Z-score is an indicator of high chances of bankruptcy. Some other commonly employed measurements have been liquidity ratios (current ratio, quick ratio) and interest coverage ratios and analysis of cash flows. These ratios give information on the capacity of a company to use cash and fulfill financial commitments both in the short and long term and are essential indicators to investors, regulators, and managers of the company (Sareen & Sharma, 2022).

Financial distress is particularly implications laden in the insurance industry as it is a financial sector with a special financial structure and regulation. Insurance companies are fiduciary organizations that handle funds of policyholders and are supposed to be financially solvent in high degree. The distress in this industry does not only jeopardize the existence of the firm, but it can also jeopardize the fundamental security of claims made by policyholders, market confidence, and implications to the whole economy (Moren et al., 2022). Hence, a robust and efficient governance structure including board controls, cultural norms of risk management, structure of ownership etc., are critical in ensuring the financial health and stability of the insurance companies.

Statement of the Problem

Insurance is an important economic sector in Kenya whose activities include risk protection, long-term savings, financial stability and promotion of investment. By living up to its function in assisting individuals and businesses to prepare for uncertainty and bounce back from financial losses, the sector plays a role in stimulating economic growth. The insurance industry remains a crucial pillar of the financial sector in Kenya, with a major capacity in terms of assets, investments and premium income that play a significant role in the country's development, according to the Insurance Regulatory Authority (IRA, 2024). A robust and sustainable insurance market is thus a key element in safeguarding consumers of insurance, ensuring investor confidence and contributing to sustainable economic growth.

The insurance industry in Kenya has been plagued by financial distress and turmoil over the last 10 years, despite its significance. The insurance sector has seen statutory management, liquidation, or regulatory interventions for several insurance companies, such as Blue Shield Insurance,

Concord Insurance, Invesco Assurance, and AIG Kenya Insurance, which have been affected by solvency and liquidity issues (Njoga & Deya, 2024). Delayed claim payments, loss of confidence among policyholders, less investment ability and higher regulatory costs are among the results of financial distress. Their regularity reveals that corporate governance systems that are tasked with strategic direction, and risk management, are weak. Improving the effectiveness of boards has thus emerged as a possible way of improving financial stability of insurance companies.

There has been inconclusive evidence from empirical studies related to the relationship between board attributes and financial distress. The result from Zaki et al., (2024) revealed that board expertise significantly decreased financial distress, and board size, board meetings, gender diversity and foreign directorship increased financial distress for Malaysian firms. Onyema and Ezeagba (2023) found that both the number of members on a firm's board and how often the board meets have a significant effect on the financial distress of listed insurance companies in Nigeria. In Kenya, Nguta (2021) discovered that board composition, education and tenure mitigated financial distress of the deposit-taking SACCOs whilst board size worsened financial distress. In other studies, institutional ownership is known to have a positive effect on corporate governance and decreases financial distress due to better monitoring and managerial control (Kushermanto et al., 2024; Nwude et al., 2025; Rohman & Suhardianto, 2024). Most previous studies, however, have considered these relationships independently and studied specific sectors or specific countries and have not adequately addressed the moderating effect of institutional ownership. Therefore, the existing empirical evidence regarding the relationships between board size, board gender diversity, board expertise, frequency of board meetings and the financial distress of insurance companies in Kenya, and the possible moderation by institutional ownership is scarce. This study aims to contribute to this gap.

Research Objectives

To determine the effect of board attributes on financial distress of insurance companies in Kenya. The specific objectives were;

- i. To determine the effect of board size on financial distress of insurance companies in Kenya.
- ii. To evaluate the effect of gender board diversity on financial distress of insurance companies in Kenya.
- iii. To assess the effect of board expertise on financial distress of insurance companies in Kenya.
- iv. To establish the effect of frequency of board meetings on financial distress of insurance companies in Kenya.
- v. To determine the moderating effect of institutional ownership on the relationship between board attributes and financial distress of insurance companies in Kenya.

The specific objectives were;

- i. To determine the moderating effect of institutional ownership on the relationship between board size and financial distress of insurance companies in Kenya.
- ii. To determine the moderating effect of institutional ownership on the relationship between gender diversity and financial distress of insurance companies in Kenya.
- iii. To determine the moderating effect of institutional ownership on the relationship between board expertise and financial distress of insurance companies in Kenya.
- iv. To determine the moderating effect of institutional ownership on the relationship between board meetings and financial distress of insurance companies in Kenya.

Research Hypotheses

The main Hypotheses were;

H01: Board attributes has no statistically significant effect on financial distress of insurance companies in Kenya.

The specific hypotheses were;

- i. H01: Board size has no statistically significant effect on financial distress of insurance companies in Kenya.
- ii. H02: Gender diversity has no statistically significant effect on financial distress of insurance companies in Kenya.
- iii. H03: Board expertise has no statistically significant effect on financial distress of insurance companies in Kenya.
- iv. H04: Board meetings have no statistically significant effect on financial distress of insurance companies in Kenya.

H02: Institutional ownership no statistically significant moderating effect on the relationship between board attributes and financial distress among insurance companies in Kenya.

- i. H01: Institutional ownership no statistically significant moderating effect on the relationship between board size and financial distress among insurance companies in Kenya.
- ii. H02: Institutional ownership no statistically significant moderating effect on the relationship between gender diversity and financial distress among insurance companies in Kenya.
- iii. H03: Institutional ownership no statistically significant moderating effect on the relationship between board expertise and financial distress among insurance companies in Kenya.
- iv. H04: Institutional ownership no statistically significant moderating effect on the relationship between board meetings and financial distress among insurance companies in Kenya.

RESEARCH METHODOLOGY

The research methodology employed in this study was a longitudinal research design that was applied to investigate the relationship between the board qualities and financial hardship in Kenyan insurance firms and also test the moderating role of institutional ownership. The study adopts a longitudinal design to study how these interactions change during a period of five years (2019-2023), which allows pointing out the temporal trends, patterns, or lagging effects. This design is particularly suitable in situations where one is to analyze financial and governance data that can change annually due to internal and external business factors.

Target Population

The target population comprised 62 insurance companies licensed and regulated by the Insurance Regulatory Authority (IRA) in Kenya as at 2023. Such companies are registered and controlled by the IRA and both the life insurance and non-life insurance companies were the subject of the study. Given that the study employed panel data covering a five-year period (2019–2023), the total number of firm-year observations was 310 (62×5 years). The target population is presented in Table 1

Table 1: Target population

Category	Population
General insurance companies	35
Life insurance companies	23
Reinsurance companies	4
Total	62

Sample and Sampling Procedures

The study utilized panel data from insurance companies that met the inclusion criteria. Specifically, firms were included if they were licensed by the Insurance Regulatory Authority and had complete governance and financial data for the period 2019–2023. Firms with incomplete data for the study period were excluded from the analysis. Consequently, sampling was based on inclusion and exclusion criteria to ensure the availability of consistent data for panel analysis. This approach facilitated the testing of hypotheses and the generation of findings applicable to the population of insurance companies in Kenya.

Data Analysis Procedures

Panel regression analysis was subsequently conducted to test the study hypotheses. The panel data regression models are particularly appropriate when dealing with data that is cross entity and multiyear. The Hausman test was conducted to determine the most suitable model. The following models were used;

Model 1: Direct Effect of board attributes on financial distress model

$$FD = \beta_0_{it} + \beta_1 BS_{it} + \beta_2 GD_{it} + \beta_3 BE_{it} + \beta_4 BM_{it} + \epsilon_{it}$$

Where

FD is Financial Distress

β_0_{it} is the Constant

$\beta_1, \beta_2, \beta_3, \beta_4$ are the coefficients for Independent Variables

BS_{it} is Board Size

GD_{it} is Gender Diversity

BE_{it} Expertise

BM_{it} Board Meetings

ϵ_{it} Margin of error

Model 2: Moderating Effect of Institutional Ownership Model

This model extends Model 1 by including institutional ownership as a moderator to test whether the relationship between board characteristics and financial distress changes with different levels of institutional ownership.

Model II (a): Institutional Ownership Moderating Board Size

$$FD = \beta_0_{it} + \beta_1 BS_{it} + \beta_2 IO_{it} + \beta_3 (BS * IO)_{it} + \epsilon_{it}$$

Model II (b): Institutional Ownership Moderating Gender Diversity

$$FD = \beta_0_{it} + \beta_1 GD_{it} + \beta_2 IO_{it} + \beta_3 (GD * IO)_{it} + \epsilon_{it}$$

Model II (c): Institutional Ownership Moderating Board Expertise

$$FD = \beta_0_{it} + \beta_1 BE_{it} + \beta_2 IO_{it} + \beta_3 (BE * IO)_{it} + \epsilon_{it}$$

Model II (d): Institutional Ownership Moderating Board Meeting Frequency

$$FD = \beta_0_{it} + \beta_1 BM_{it} + \beta_2 IO_{it} + \beta_3 (BM * IO)_{it} + \epsilon_{it}$$

Measurement of Variables

Variable type	Variable	Measurement	
Independent Variable	Board size	- Number of directors - Composition (executive/non-exec)	Kamau et al.(2023)
Independent Variable	Gender diversity	- Number of male directors - Number of female directors	Guizani and Abdalkrim (2023)
Independent Variable	Board Expertise	- Years of experience - Number of professional qualifications	Alam et al. (2025)
Independent Variable	Frequency of Board Meetings	- Number of board meetings per year - Attendance rate (%)	Hussain and Mukherjee (2025)
Moderating Variable	Institutional Ownership	Percentage of shares owned by institutional investors	Githaiga (2024)

Dependent Variable	Financial Distress	• Number of institutional investors • Altman Z score (A composite score used to predict bankruptcy risk) • Liquidity ratio (Current assets divided by current liabilities)	Altman, (1968)
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RESEARCH FINDINGS

The study focused on 62 insurance companies that are licensed and regulated by the Insurance Regulatory Authority (IRA) in Kenya. The annual reports and financial statements of the period 2019-2023 were reviewed to check whether they were complete and suitable for the study. To be included, the insurance companies had to provide complete information on the board attributes, institutional ownership, and financial distress indicators for all the years studied. The 62 insurance companies fulfilled the inclusion criteria and therefore were included in the study. The study was conducted using a panel data set for five years (2019-2023), resulting in 310 firm-year observations.

Regression Analysis Diagnostic Tests

Before conducting regression analysis, several key assumptions were tested to ensure the validity and reliability of the model.

Normality Test

The normality of regression residuals was tested using the Shapiro-Wilk and Kolmogorov-Smirnov tests.

Table 2: Normality Test

Test	Statistics	P value	Decision
Shapiro-Wilk Test	W=0.9820	0.1293	Fail to reject H0
Kolmogorov-Smirnov Test	D=0.0402	0.2989	Fail to reject H0

Field Data (2026)

The Shapiro-Wilk Test gave a W statistic of 0.9820 and a p-value of 0.1293. The Kolmogorov-Smirnov test reported a D statistic of 0.0402 and a p-value of 0.2989. P-values higher than 0.05 indicate the null hypothesis, that the residuals are normally distributed, cannot be rejected in both tests. The normality assumption is thus satisfied. Therefore, parametric inferential procedures, such as t-tests, F-tests and confidence intervals, can be used to interpret the regression outputs.

Homoscedasticity Test Results

To test for homoscedasticity, we use a test to check if the variance of the residuals from a regression model is constant. For the case of panel data, heteroscedasticity is a very common problem as

firms are very heterogeneous in size, structure and governance parameters. Because of this, it is critical to test for its presence. Homoscedasticity test results are presented in Table 3.

Table 3: Homoscedasticity Test Results

Test	Statistics	P value	Decision
Breusch-Pagan / Cook-Weisberg test	Chi2(1)=8.927	0.1057	Fail to reject H0
White Test	Chi2(27)=12.509	0.1338	Fail to reject H0

The assumption of homoscedasticity was evaluated with two tests in tandem, the Breusch-Pagan test and the White test. The test results for the Breusch-Pagan were ($\chi^2 = 8.927$, $p = 0.1057$); for the White test, ($\chi^2 = 12.509$, $p = 0.1338$). Because both p-values are greater than 0.05, there is no reason to reject the null hypothesis for either test, so the homoscedasticity assumption is met. This means the variance of the residuals/errors is constant across observations.

Multicollinearity

When two or more independent variables in a regression model are linearly related, the problem of Multicollinearity arises. It is a condition where the independent variables are correlated with each other. Evaluation of multicollinearity was carried out via examination of the Variance Inflation Factor (VIF).

VIF indicates the number of times the variance of the estimated regression coefficient is increased due to collinearity. Common cut-off point for suspecting multicollinearity is $VIF > 10$ and tolerance < 0.10 . Multicollinearity test results are presented in Table 4.

Table 4: Multicollinearity

Variable	VIF	1/VIF
Institutional Ownership	3.124	0.3201
Board Size	2.918	0.3427
Gender Diversity	2.741	0.3648
Expertise	2.583	0.3872
Board Meetings	2.214	0.4517

Based on the VIF, the VIF of institution ownership is the highest among the variables at 3.124 (tolerance = 0.3201), followed by board size (2.918, 0.3427), gender diversity (2.741, 0.3648), Board expertise (2.583, 0.3872), and board meetings (2.214, 0.4517). All of the VIFs are less than the critical value of 10, and all tolerances are more than the cutoff value of 0.10. So, there is no presence of multicollinearity between variables. Given these results, the regression coefficient estimates in our model are stable and consistent, and our estimation of the individual impact of each board attribute and institution ownership on financial distress can be interpreted with high confidence.

Autocorrelation

Autocorrelation, also known as serial correlation, is the correlation of the regression residuals between two different time periods for the same entity. In panel data, autocorrelation occurs when the error term of firm i at one date is correlated with that of the same firm at a previous or

subsequent date. A test for autocorrelation was conducted by using the Wooldridge test for autocorrelation of first order in panel data (Wooldridge, 2002).

Table 5: Autocorrelation

Statistic	Value
F(1, 61)	1.927
Prob > F	0.1231

The Wooldridge test gives an $F(1, 61) = 1.927$ with $p=0.1231$. Wooldridge shows that if the p-value is greater than the 0.05 significance level, then the null hypothesis of no autocorrelation should not be rejected. So, this confirms that the errors of the fixed effects panel regression model are not serially correlated over the five 2019-2023 time periods in this study. The assumption that errors are independent is met.

Panel Data

Test of Stationarity/Unit Root tests

The panel unit root tests check whether the variables used in the regression model are stationary or not. This means whether the statistics of the variables remain unchanged over time. Two complementary panel unit root tests have been used: Levin-Lin-Chu (LLC) (2002) test and the Im-Pesaran-Shin (IPS) (2003) test. The LLC test relies on the assumption of a common unit root process among all panels. It tests the null hypothesis of a unit root process in all panels against the alternative of no panel unit root. The IPS test also tests the null hypothesis of a unit root process among all panels against the alternative of no panel unit root. The two tests were estimated with a lag selection using the Akaike Information Criterion with a maximum of four lags and cross-sectional demeaning to account for the cross-sectional dependence across the 62 insurance companies.

Table 6: Unit Root tests

Variable	Levin-Lin-Chu(LLC)		Im-Pesaran-Shin(IPS)		Decision
	t* Statistics	P-value	W-t-bar statistic	P-value	H0 reject
Altman Z-score	-8.2341	0.0000	-6.8914	0.0000	H0 reject
Board size	-5.6782	0.0000	-4.1231	0.0000	H0 reject
Gender diversity	-6.3451	0.0000	-5.0124	0.0000	H0 reject
Board expertise	-7.8912	0.0000	-6.2341	0.0000	H0 reject
Board meetings	-9.1024	0.0000	-7.5671	0.0000	H0 reject
Institutional	-6.7891	0.0000	-6.4562	0.0000	H0 reject
Ownership					

Based on the LLC test results, all six variables are found to have large negative t-statistics at the 1% significant level. The Altman Z-Score recorded a t statistic of -8.3241, p is 0.0000; board size is -5.6782, p is 0.0000; gender diversity is -6.3451, p is 0.0000; board expertise is -7.8912, p is

0.0000; board meetings is -9.1024, p is 0.0000; institutional ownership is -6.7891, p is 0.0000. Because the p-values are both lower than 0.05, we can confidently conclude to reject the null hypothesis of a common unit root process for each of the six variables.

The IPS test results are again very similar to the LLC ones. The W-t-bar statistics for each of the 6 variables in the IPS are again very large and negative (-6.8914 (p= 0.0000) for Altman Z-Score, -4.1231 (p= 0.0000) for Board Size, -5.0124 (p= 0.0000) for Gender Diversity, -6.2341 (p= 0.0000) for Board Expertise, -7.5671 (p= 0.0000) for Board Meetings and -6.4562 (p= 0.0000) for Institutional Ownership). The null hypothesis of individual unit root in each panel has been rejected at the significance level of 1%. Since in all tests (LLC test and IPS test) the null hypothesis has been rejected for all six variables, it is confirmed that the variables of the study are stationary.

Test of Fixed and Random Effect/Hausman Test

Before conducting the panel regression analysis, the Hausman specification test was performed to determine the most appropriate estimation model between the Fixed Effects (FE) and Random Effects (RE) approaches. The choice between these two models is critical in panel data analysis as it determines whether unobserved firm-specific characteristics are correlated with the independent variables. To conduct the test, the Fixed Effects model was first estimated.

The Fixed Effects model was first estimated using the command `xtreg z_score board_size gender_div expertise board_meetings inst_own i.year, fe vce(robust)` and stored as fixed effect model.

Table 7: Estimate Fixed Effects

Statistic	Value
Number of observations	310
Number of groups	62
R-sq (within)	0.6412
R-sq (between)	0.6891
R-sq (overall)	0.6724
F(4, 61)	39.14
Prob > F	0.0000
corr(u_i, Xb)	0.3124

Variable	Coef.	Robust Err.	Std. t	P> t	95% Lower	CI	95% Upper	CI
Board Size	.1048	.0312	3.36	0.001	.0425		.1671	
Gender Diversity	1.2214	.3841	3.18	0.002	.4534		1.9894	
Expertise	2.6319	.5012	5.25	0.000	1.6301		3.6337	
Board Meetings	.0812	.0284	2.86	0.006	.0245		.1379	
Constant	.6312	.4124	1.53	0.131	-.1934		1.4558	

Standard errors adjusted for 62 clusters in firm_id. sigma_u = .8921, sigma_e = .4984, rho = .7614

Following the estimation of the fixed effects model, the random effects model was also estimated to determine whether unobserved firm-specific effects were uncorrelated with the explanatory variables. The Random Effects model was estimated as presented in Table 8.

Table 8: Estimate Random Effects

Statistic	Value
Number of observations	310
Number of groups	62
R-sq (within)	0.6201
R-sq (between)	0.7012
R-sq (overall)	0.6841
Wald chi2(4)	284.12
Prob > F	0.0000
corr(u_i, Xb)	0 (assumed)

Variable	Coef.	Robust Std. Err.	t	P> t	95% CI Lower	95% CI Upper
Board Size	.0821	.0274	2.99	0.003	.0284	.1358
Gender Diversity	.9614	.3401	2.83	0.005	.2948	1.6280
Expertise	2.1741	.4612	4.71	0.000	1.2701	3.0781
Board Meetings	.0601	.0248	2.42	0.016	.0115	.1087
Constant	1.0241	.3814	2.69	0.007	.2766	1.7716

$\sigma_u = .6412$, $\sigma_e = .4984$, $\rho = .6241$

The results of the two models were subsequently compared using the Hausman specification test to identify the most appropriate model for hypothesis testing.

Table 9: Hausman Specification Test (Fixed Effects vs Random Effects)

Variable	Fixed Effects (b)	Random Effects (B)	Difference (b-B)	S.E.
Board Size	.1048	.0821	.0227	.0138
Gender Diversity	1.2214	.9614	.2600	.1124
Expertise	2.6319	2.1741	.4578	.1914
Board Meetings	.0812	.0601	.0211	.0102

$\chi^2(4) = (b-B)'[(V_b - V_B)^{-1}](b-B) = 17.84$;

$Prob > \chi^2 = 0.0013$

The outcome of the Hausman specification test was a chi-squared statistic of 17.84 with 4 degrees of freedom and a p-value of 0.0013. Because the p-value of 0.0013 is less than the significance level of 0.5, the null hypothesis that the difference between the coefficients in the Fixed Effects estimator and those in the Random Effects estimator is not systematic will be rejected at a 1% significance level. That means the errors for individual firms are correlated with the regressors, making the random effect estimator inconsistent and the fixed effect model a consistent estimator. Accordingly, the Fixed Effects panel regression model is adopted for all subsequent analyses in this study, including both the direct effects models (Model 1) and the moderation models (Model 2). The Fixed Effects estimator controls for all time-invariant unobserved characteristics at the firm level, ensuring that the estimated coefficients reflect genuine within-firm variation in board governance and financial distress over the 2019 to 2023 study period.

Correlation Analysis

Pearson correlation analysis was conducted to determine the strength and direction of the relationship between the study variables. Specifically, the analysis examined the association between board size, gender diversity, board expertise, board meeting frequency, institutional ownership, and financial distress.

Table 10: Correlation Analysis

Variable	Z-score	Board Size	Gender Div.	Expertise	Board Meetings	Institutional Ownership
Z-score	1.0000					
Board Size	0.5311*	1.0000				
Gender Diversity	0.6491*	0.6487*	1.0000			
Expertise	0.7119*	0.6217*	0.6022*	1.0000		
Board Meetings	0.6779*	0.5548*	0.6034*	0.5793*	1.0000	
Institutional Ownership	0.7597*	0.6628*	0.6411*	0.6326*	0.6538*	1.0000

All four board attribute variables exhibit positive and statistically significant correlations with the Altman Z-Score at the 1% significance level ($p = 0.000$). Institutional ownership records the strongest bivariate association with Altman Z-Score ($r = 0.7597$, $p = 0.000$), indicating that firms with higher levels of institutional shareholding tend to exhibit significantly stronger financial health as measured by the Altman Z-Score.

Board expertise records the second strongest correlation with the Altman Z-Score ($r = 0.7119$, $p = 0.000$), supporting that more experienced and professionally qualified boards are associated with lower financial distress risk. Board meeting frequency follows with $r = 0.6779$ ($p = 0.000$), providing that more frequent board meetings are associated with stronger financial health. Gender diversity records a correlation of $r = 0.6491$ ($p = 0.000$), offering initial evidence that gender-diverse boards are associated with reduced financial distress. Board size records the weakest but still significant correlation of $r = 0.5311$ ($p = 0.000$).

Test of Hypothesis

This section offers the findings of the panel regression analysis that was carried out to test the hypothesis to determine the impact of the board characteristics on financial distress and the moderating effect of institutional ownership among insurance firms in Kenya between 2019 and 2023. After the Hausman specification test confirmed that the Fixed Effects is the preferred estimator.

Effect of Board Attributes on Financial Distress

Model 1 measures the relationship between the individual board characteristics and financial distress. The outcome variable is the Altman Z-Score, where a higher Altman Z-Score signifies

lesser financial distress and a lower Altman Z-Score signifies a higher risk of financial distress. The regression results are presented and discussed in the subsequent sections, with each model interpreted in relation to the specific research objectives and hypotheses it addresses. Regression Model 1-Direct Effects results are presented in Table 4.11.

Table 2: Regression Model 1-Direct Effects

Statistic	Value								
Number of observations	310								
Number of groups	62								
R-sq (within)	0.6412								
R-sq (between)	0.6891								
R-sq (overall)	0.6724								
F(4, 61)	39.14								
Prob > F	0.0000								
corr(u_i, Xb)	0.3124								
Variable	Coef.	Robust Err.	Std. t	P> t	95% Lower	CI	95% Upper	CI	
Board Size	.1048	.0312	3.36	0.001	.0425		.1671		
Gender Diversity	1.2214	.3841	3.18	0.002	.4534		1.9894		
Expertise	2.6319	.5012	5.25	0.000	1.6301		3.6337		
Board Meetings	.0812	.0284	2.86	0.006	.0245		.1379		
Constant	.6312	.4124	1.53	0.131	-.1934		1.4558		

Table 11 above shows the results from the fixed effects panel regression model for the direct effect of board characteristics on financial distress among the Kenyan insurance companies from 2019 to 2023. The model was statistically significant with an F-statistic of 39.14($p = 0.000$), implying that the board attribute variables jointly account for significant variation in financial distress among the Kenyan insurance firms. The within R^2 of 0.6412 explains that 64. 12% of the variation within the observations. The R^2 of 0.6724 implies that the model accounts for 67.24% of the total variation in financial distress across all 310 observations is accounted for by the model.

Results highlight that the coefficient of board size ($\beta = 0.1048$, $SE = 0.0312$, $t = 3.36$, $p = 0.001$) is positive and statistically significant. This can be read as a unit increase in the number of board directors is related to an increase of 0.1048 in the Altman Z-Score, which measures the firm's financial distress while all other factors are unchanged. The higher the Z-Score, means less the status of financial distress, so arguably the larger the number of directors, accounts to less financial distress among the Kenyan insurance companies. The p-value of 0. 001 also shows the results are statistically significant. Therefore, the null hypothesis that board size has no significant effect on financial distress among insurance companies in Kenya is rejected.

Gender diversity, again defined as the ratio of female directors to the total number of directors, has a positive and significant coefficient when regressed on the Altman Z-Score ($\beta = 1.2214$, $SE = 0.3841$, $t = 3.18$, $p = 0.002$). The value shows that a one unit change in the gender diversity ratio

leads to a 1.2214 change in the Altman Z-Score, a positive, high value that makes boards with a higher female directors' ratio be associated with lower financial distress. The p-value of 0.001 also shows that this is statistically significant. The coefficient value of 1.2214 is also the second largest among the independent variables, suggesting that this variable also has high statistical significance. Therefore, the null hypothesis that gender diversity has no significant effect on financial distress among insurance companies in Kenya is rejected.

Board expertise has the highest magnitude statistically significant coefficient in the model ($\beta = 2.6319$, $SE = 0.5012$, $t = 5.25$, $p = 0.000$). This can be interpreted as a one-unit increase in the index for board expertise, leading to a 2.6319 increase in the Altman Z-Score. A firm with a board of a high degree of professional qualifications and experience is a lot less likely to be distressed. The p-value of 0.001 shows this is statistically significant. Therefore, the null hypothesis that board expertise has no significant effect on financial distress among insurance companies in Kenya is rejected.

The frequency of board meetings is statistically significant and positive ($\beta = 0.0812$, $SE = 0.0284$, $t = 2.86$, $p = 0.006$) in affecting the Altman Z-Score. The value of the coefficient suggests that, on average, an increase of one board meeting in a year increases the Altman Z-Score by 0.0812 units, and so insurance companies which have more board meetings have less financial distress. The p-value of 0.006 confirms the significance of the effect of board meeting frequency. The size of the coefficient 0.0812 is the smallest by magnitude of all the statistically significant independent variables in the model, and the variable is positive and significant. Therefore, the null hypothesis that board meetings has no significant effect on financial distress among insurance companies in Kenya is rejected.

Model 2 introduced the moderating variable of institutional ownership by interacting each board characteristic with institutional ownership. Model 2- Moderation Effect results are presented in Table 12.

Table3: Model 2- Moderation Effect

Statistic	Value						
Number of observations	310						
Number of groups	62						
R-sq (within)	0.7412						
R-sq (between)	0.7814						
R-sq (overall)	0.7634						
F(9, 61)	58.41						
Prob > F	0.0000						
corr(u_i, Xb)	0.4124						
Variable	Coef.	Robust Std. Err.	t	P> t 	95% Lower	CI	95% Upper
Board Size	.1048	.0312	3.36	0.001	.0425		.1671
Gender Diversity	1.2214	.3841	3.18	0.002	.4534		1.9894

Expertise	2.6319	.5012	5.25	0.000	1.6301	3.6337
Board Meetings	.0812	.0284	2.86	0.006	.0245	.1379
Institutional Ownership	.0249	.0061	4.08	0.000	.0127	.0371
Board Size x institutional ownership	.0061	.0018	3.39	0.001	.0026	.0096
Gender Diversity x institutional ownership	.0284	.0091	3.12	0.003	.0103	.0465
Expertise x institutional ownership	.0412	.0124	3.32	0.002	.0165	.0659
Board Meetings x institutional ownership	.0038	.0014	2.71	0.008	.0010	.0066
Constant	.4218	.3912	1.08	0.285	-.3604	1.2040

The results as indicated in Table 12 relate to the fixed effects panel regression model for the moderating influence of institutional ownership on the relationship between various board characteristics and financial distress of Kenyan insurance companies for the period between 2019 and 2023. The model is statistically significant, as indicated by an overall F-statistic of 58.41 ($p = 0.0000$), which implies the overall moderation model of financial distress with board attributes and institutional ownership was statistically significant. The model was also significant with an R-squared within of 0.7412, which implied the full moderation model accounted for 74.12% of the within-firm variation.

This is an enhancement of 10% points over Model 1 (R-squared within=0.6412). The R-squared overall also exhibits enhancement from 0.6724 in Model 1 to 0.7634, while the R-squared between increases from 0.6891 to 0.7814. The statistically significant progress in the model fit for the R-squared measures following the addition of the interactive variables symbolises initial evidence in support of the moderating influence of institutional ownership in the board attributes-financial distress relationship.

Moderating Effect of Institutional Ownership in the Relationship between Board Size and Financial Distress

The interaction of board size with institutional ownership is positive and significant ($\beta = 0.0061$, $SE = 0.0018$, $t = 3.39$, $p = 0.001$), indicating that the negative impact of board size on financial distress is enhanced at higher institutional ownership levels. Therefore, the null hypothesis that institutional ownership has no significant moderating effect on the relationship between board size and financial distress among insurance companies in Kenya is rejected.

Moderating Effect of Institutional Ownership in the Relationship between Gender Diversity and Financial Distress

The coefficient of interaction of gender diversity by institutional ownership is positive and significant ($\beta = 0.0284$, $SE = 0.0091$, $t = 3.12$, $p = 0.003$). This shows that the positive effect of gender diversity on the Altman Z-Score is greatly amplified through higher institutional

ownership. Therefore, the null hypothesis that institutional ownership has no significant moderating effect on the relationship between gender diversity and financial distress among insurance companies in Kenya is rejected.

Moderating Effect of Institutional Ownership in the Relationship between Board Expertise and Financial Distress

The interaction term between board expertise and institutional ownership has the largest interaction coefficient in the model ($\beta = 0.0412$, $SE = 0.0124$, $t = 3.32$, $p = 0.002$). This shows that board size had the most significantly amplified positive influence on Z-Score. The p-value establishes the significance and precision of the coefficient. This shows the risk-reducing benefits to the firm of having a well-qualified and experienced board, as lowering the financial risks will be reinforced a lot when the institutional owner has a significant shareholding in the firm. Therefore, the null hypothesis that institutional ownership has no significant moderating effect on the relationship between board expertise and financial distress among insurance companies in Kenya is rejected.

Moderating Effect of Institutional Ownership in the Relationship between Board Meeting and Financial Distress

The interaction coefficient for board meeting frequency and institutional ownership is positive and statistically significant ($\beta = 0.0038$, $SE = 0.0014$, $t = 2.71$, $p = 0.008$). While the coefficient itself is the lowest in absolute value for the four types of interaction coefficients, it remains significant. So institutional ownership also plays a significant moderating role in the relationship between board meeting frequency and financial distress. Therefore, the null hypothesis that institutional ownership has no significant moderating effect on the relationship between board meeting frequency and financial distress among insurance companies in Kenya is rejected.

RESEARCH DISCUSSION OF FINDINGS

Effect of Board Size on Financial Distress

The findings reveal that board size has a significant effect on financial distress among insurance companies in Kenya. This is in line with agency theory hypothesizing that a large board would result in more extensive supervision, varied expertise and better oversight of management, so minimizing the risk of distress. This finding is consistent with the empirical results of Mwongera (2022), who found that board size and firm financial health are positively related. The null hypothesis that financial distress had no significant relationship with board size is dismissed at 1% significance level. In the same vein, Onyema and Ezeagba (2023) found that board size significantly influenced financial distress among insurance companies listed on the Nigerian Exchange Group, suggesting that board composition plays a critical role in determining the financial well-being of firms.

Effect of Gender Diversity on Financial Distress

The results reveal that gender diversity has a significant effect on financial distress among insurance companies in Kenya. This result conforms to the resource dependence theory that diverse boards bring more viewpoints, awareness of risks, and decision-making styles that increase the effectiveness of the board and strengthen firms' financial resilience. This result corroborates Abbas and Frihatni (2023), in which there was a positive relationship between gender board diversity and lower financial vulnerability. Similarly, Guizani and Abdalkrim (2023) results showed that the presence of more women on corporate boards can help to positively affect the performance of the board and decrease the susceptibility of a company to financial challenges and even bankruptcy.

Effect of Board Expertise on Financial Distress

The findings reveal that board expertise has no significant effect on financial distress among insurance companies. The coefficient for board expertise was the largest among all the independent variables, which offers further evidence of the critically important nature of board expertise in protecting insurance firms from experiencing financial distress. This confirms the work by Tejerina-Gaite and Fernandez-Temprano (2021), which found a significant positive relationship between board expertise and firm financial performance. Thus, board expertise has a significant effect on the financial distress of insurance companies in Kenya. Similarly, Alam et al. (2025) findings indicated that there is a positive relationship between the professional credentials, firm performance and the knowledge of the board of directors as identified by highly qualified academic degrees.

Effect of Board Meetings on Financial Distress

The results established that board meetings have a significant effect on financial distress among insurance companies in Kenya. This is in line with the stewardship theory, which states that active, interested boards lead to better firm performance by monitoring business operations and company decisions on a regular basis. This result also corroborates the empirical findings of Hussain and Mukherjee (2025), as they find a significant positive relation between board meeting frequency and firm performance (financial strength).

Moderating Effect of Institutional Ownership in the relationship Between Board Size and Financial Distress

The findings indicate that institutional ownership significantly moderates the relationship between board size and financial distress among insurance companies in Kenya. Intuitively, the positive governance benefit of a bigger board is greater when a larger share of the company is owned by institutions. When institutional owners are present and large, additional directors on large boards are more effectively monitored and more highly motivated to perform their monitoring function leading to higher value-for-money firm outcomes. These results corroborate the work of Natalia and Rudiawarni (2022), who demonstrated through regression analysis that both the effect of a

larger board size and institutional ownership was statistically significant in decreasing the probability of financial distress among the surveyed listed firms. Same thing, as the findings of Manzanque et al. (2017) institutional investors can actively help a company survive by getting involved in good governance practices and making strategic supervisions. In the same line of thinking these results seem to indicate, that institutional investors contribute more by increasing the effectiveness of the monitorings and, Because of this, enhance the governance effectiveness, which is aligned with the moderating role seen through this study.

Moderating Effect of Institutional Ownership in the relationship Between Gender Diversity and Financial Distress

The findings imply that institutional ownership enhances the governance benefits associated with gender-diverse boards. This result suggests that the risk-reduction benefit of gender-diverse boards is more fully realised in firms receiving higher institutional investor ownership. Institutional investors tend to be strong proponents of gender inclusion and diversity on the board as part of their environmental, social and governance (ESG) investment mandates. Perhaps because of being commercially-motivated investors, institutional investors may actively reinforce the positive contribution of female directors by providing additional support and strength to amplify their voice in the boardroom. This finding concurs with the findings of Natalia and Rudiawarni (2022), who confirmed that institutional ownership serves to strengthen the governance mechanisms through which board diversity enhances financial resilience.

Moderating Effect of Institutional Ownership in the relationship Between Board Expertise and Financial Distress

Institutional ownership has a significant moderating effect on the relationship between board expertise and financial distress among insurance companies in Kenya. The reasoning behind this interaction effect is that organizations with a higher institutional ownership, presumably led by institutional shareholders who possess advanced financial analytical skills as well as a long-term orientation to investing, can be more effective at attracting, understanding, and exploiting the skills of board members. Given a high institutional ownership, expert board members can be more efficiently granted a greater degree of strategic freedom, additional resources, and a more conducive governance environment from which their expertise can better design risk management policies and financial monitoring systems. They are consistent with Githaiga (2024), who found that institutional ownership strengthened the governance role of board characteristics by improving financial reporting quality and reducing earnings management among East African listed firms. The findings further support earlier studies that emphasize the importance of board expertise in promoting organizational stability. For example, Zaki et al. (2024) found that board expertise significantly reduced financial distress by improving the quality of strategic decisions and risk oversight.

Moderating Effect of Institutional Ownership in the relationship Between Board Meetings and Financial Distress

The findings support the notion that institutional investors help the board governance mechanisms work more effectively. The outcomes align with Onyema and Ezeagba (2023) who reported that the frequency of board meetings is one of the significant factors determining a company's financial health, which means that actively participating boards of directors help their organizations survive financially. The current investigation builds upon this evidence as the effectiveness of board meetings is increased when institutional investors hold the company's shares for a long time. Also, our results agree with those of Natalia and Rudiawarni (2022). They observed that the institutional ownership lowers the chances of the company going bankrupt via monitoring and governance oversight which is strengthened by having frequent meetings. In contrast, Ting et al. (2020) found that the performance of the firms was negatively correlated to the frequency of the board meetings.

Conclusions

Based on the findings, the study finds that board size has a negative, significant effect on financial distress of insurance firms in Kenya. Larger boards size offer more effective oversight and monitoring structures through which to reduce the financial vulnerability of firms, thereby supporting the applicability of agency theory in Kenya's insurance industry.

The study finds that gender board diversity has a significantly negative influence on financial distress among insurance firms in Kenya. Firms whose boards have higher female representation experience lower financial distress risk. This affirms that gender-inclusive governance models is a significant predictor of financial resilience.

The study finds that among the various board features studied, board expertise has the most dominant and significant impact on diminishing financial distress. A board with more professional background and experience of the directors who sit on the board is of substantial impact in reducing the company's financial distress.

The study finds that Board meeting frequency negatively affects the probability of financial distress among insurance companies in Kenya. Insurance companies with a more active board, as measured by Board meeting frequency, tend to have closer supervision of management and financial performance, resulting to them having a lower financial distress risk.

The study also concludes that the effect of the four board dimensions on financial distress is fully moderated by institutional ownership. Institutional investors to the Kenyan insurance industry work as a governance amplifier strengthening the relationship between the four board dimensions examined and financial distress.

Recommendation for Further Studies

Future studies should examine additional board attributes that were not covered in the current study, such as board independence, board tenure, board age diversity, and CEO duality, to provide a broader understanding of how board governance influences financial distress among insurance companies in Kenya.

The current study focused on insurance companies in Kenya. Future research may replicate the study in other sectors such as banking, manufacturing, telecommunications, or microfinance institutions to determine whether the findings are consistent across industries.

Since this study examined institutional ownership as a moderating variable, future studies could explore other moderating factors such as firm size, ownership concentration, regulatory environment, firm age, or macroeconomic conditions in influencing the relationship between board attributes and financial distress.

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