IMPACT OF UNDERWRITING RISK ON MARKET CAPITALIZATION OF LISTED INSURANCE COMPANIES IN NIGERIA: THE MODERATING ROLE OF COMPANY SIZE, LEVERAGE AND PROFITABILITY

KEHINDE ISIAQ OLAIYA
Olabisi Onabanjo University
kenkenolaiya@gmail.com

RUSSELL OLUKAYODE CHRISTOPHER SOMOYE
Olabisi Onabanjo University
russell.s@oouagoiwoye.edu.ng

GANIYU OLUMUYIWA YINUSA
Olabisi Onabanjo University
yinusa.ganiyu@oouagoiwoye.edu.ng

MAYOWA EBENEZER ARIYIBI
Olabisi Onabanjo University
ariyibimayowa@gmail.com

Abstract

This study investigates the relationships between market capitalization, financial performance metrics, risk indicators, and firm size using three econometric models: Pooled Ordinary Least Squares (OLS), Fixed Effects (FE), and Dynamic Generalized Method of Moments (DGMM). The results reveal that lagged market capitalization exhibits a positive and highly significant relationship across all models, highlighting its persistence and alignment with financial path dependency theory. Firm size consistently emerges as a critical determinant, positively and significantly influencing the dependent variable in all models. Conversely, financial performance metrics such as ROA and ROE show no significant effects, indicating limited direct relevance within this context. Risk indicators, including the Claims Ratio and Combined Ratio, yield mixed results, with marginal significance in specific models but inconsistent robustness overall. Leverage displays a borderline significant negative effect under dynamic conditions in the DGMM model, suggesting a nuanced relationship. Among the models, the Fixed Effects approach provides the best fit, while DGMM captures dynamic adjustments with weaker explanatory power. Key recommendations include focusing on strategies to enhance firm size, strengthening market capitalization through improved governance and investor confidence, and refining risk management practices to optimize key metrics. Firms are also advised to maintain balanced leverage levels to mitigate potential negative impacts. Future research should incorporate macroeconomic and industry-specific factors to offer a more comprehensive analysis of the determinants influencing market capitalization and firm performance.

Keywords: Market Capitalization, Firm Size, Risk Management, Financial Performance, Econometric Models

JEL Classification: G10, G32, C33, L25, G22

1. INTRODUCTION

The insurance industry plays a crucial role in promoting economic stability and growth by providing protection for individuals, businesses, and the broader society against the financial impacts of unforeseen events. As a key component of the financial ecosystem, insurance companies enable risk transfer and management, ensuring the continuity of various economic activities, fostering market confidence, and encouraging investments (Cummins & Weiss, 2009). In Nigeria, the insurance sector has experienced steady, albeit gradual, growth while facing unique challenges that influence its performance, expansion, and sustainability. Operating in a highly competitive and dynamic economic environment, Nigerian insurers must carefully balance risk and return to safeguard market value.

A central indicator of performance and stability in capital markets, market capitalization reflects the aggregate valuation of a company's equity as perceived by investors, encompassing factors like profitability, operational resilience, and potential for growth (Olaiya, Arikewuyo, Sogunro, & Yunusa, 2021). For insurance firms, achieving and sustaining healthy market capitalization levels signals strong firm health and an adeptness at managing complex risks, especially underwriting risk.

Underwriting risk is one of the core risks that insurance companies face, arising from the essential activities of assessing, pricing, and issuing insurance policies. This risk occurs when the financial obligations associated with claims surpass the premiums collected, potentially causing financial strain that undermines profitability, liquidity, and the firm's market value. Many studies highlight the significant impact of underwriting practices on financial performance, particularly in uncertain or fluctuating economic environments such as Nigeria's (Berger & Humphrey, 1991; Cummins & Weiss, 2009). Effective underwriting is thus critical to operational success, influencing not only profitability and liquidity but also investor perceptions of stability. Poorly managed underwriting risk can lead to high claims ratios, lower investor confidence, and reduced market capitalization, diminishing the firm's attractiveness in the stock market.

Given the inherent volatility in underwriting outcomes, it is essential to explore the factors that may influence or moderate underwriting risk's effect on market capitalization. Internal firm-specific characteristics, such as company size, leverage, and profitability, are likely to play vital roles in this relationship. Larger firms, for example, may have greater capacity to spread and diversify risks across a broader portfolio, thereby softening the adverse effects of underwriting risk through economies of scale and often more advanced risk management capabilities. Research, including studies by Cummins and Weiss (2009) and Berger and Humphrey (1991), indicates that larger firms typically demonstrate higher efficiency and profitability, strengthening investor confidence and market valuation. Conversely, smaller firms may have limited resources to absorb underwriting losses,

making them more susceptible to adverse claims fluctuations and market capitalization impacts.

Leverage is another key moderating factor. As an indicator of a firm's reliance on borrowed funds, leverage reflects the insurer's capital structure and risk-bearing capacity. High leverage can magnify the effects of underwriting risk on market value, as heavily indebted firms face greater financial pressure during adverse periods. Leverage also influences investor perceptions of risk, often leading to increased scrutiny of highly leveraged firms in volatile underwriting markets (Olaiya, Olowofela, and Ariyibi, 2023). Additionally, profitability serves as a buffer against underwriting volatility, giving firms financial resilience to withstand unexpected claims without negatively affecting market value. Profitable firms may benefit from a stable revenue base, which helps offset underwriting losses and maintains investor confidence even amidst rising claims.

This study examines the impact of underwriting risk on the market capitalization of publicly listed Nigerian insurance companies, factoring in the moderating effects of firm size, leverage, and profitability. Focusing on insurers listed on the Nigeria Exchange Limited (NGX), the study uses recent market data to provide a grounded analysis of how underwriting risk affects firm value in the Nigerian context. Through econometric modeling and a sample of listed insurers, this research seeks to clarify the direct relationship between underwriting risk and market capitalization and to assess how firm size, leverage, and profitability influence this relationship. Using listed companies allows for an examination of publicly available financial data, ensuring transparency and comparability across firms, while the moderating variables offer a comprehensive perspective on the internal dynamics that shape the impact of underwriting risk.

The study's findings will add to the literature on risk management and firm valuation in the insurance industry, providing insights valuable to practitioners, regulators, and investors in Nigeria and beyond. By focusing on moderating factors, this research offers a deeper understanding of how internal characteristics can either mitigate or amplify the effects of underwriting risk on market value, with practical implications for corporate strategies and policy development. By shedding light on these relationships, this study aims to support the Nigerian insurance industry's resilience and growth, while informing strategies to boost investor confidence, improve regulatory frameworks, and enhance the sector's contributions to national economic stability.

2. LITERATURE REVIEW

2. 1. THE ROLE OF INSURANCE IN ECONOMIC STABILITY AND GROWTH

The insurance industry is essential in fostering economic growth by protecting individuals, businesses, and society from the financial impacts of unexpected events (Skipper, 1997; Arena, 2008). Insurance companies contribute to economic resilience by enabling risk transfer and management, which promotes market confidence and supports investments (Biener & Eling, 2012). In developing

economies like Nigeria, where financial markets are often more vulnerable to external shocks, the insurance sector plays a crucial role in sustaining business continuity and economic stability (Alhassan & Biekpe, 2016). However, challenges such as limited market penetration, low public trust, and a volatile economic environment often hinder the sector's growth potential (Okura, 2014; Akinlo & Apanisile, 2014). These factors underscore the need for Nigerian insurers to strategically balance risk and return to safeguard their market position and sustain growth.

2.2. MARKET CAPITALIZATION AND FIRM VALUE IN INSURANCE

Market capitalization, a key metric in capital markets, reflects the cumulative equity valuation as perceived by investors and encompasses various elements such as profitability, operational resilience, and growth potential (Adams & Jiang, 2016). For insurance firms, strong market capitalization not only signals robust financial health but also suggests effective management of complex risks, particularly underwriting risk (Browne, Carson, & Hoyt, 2001). Market capitalization, therefore, serves as an indicator of investor confidence and market valuation, linked to a firm's risk management capabilities and profitability (Adams, 1996). Studies on insurance firms' performance in developing economies reveal that optimal market capitalization is essential for financial resilience and growth in contexts with high market uncertainty, as is common in Nigeria (Bodie, Kane, & Marcus, 2014; Uche & Chikeleze, 2001).

2.3. UNDERWRITING RISK AND ITS IMPACT ON FIRM PERFORMANCE

Underwriting risk, stemming from the core activity of assessing, pricing, and issuing insurance policies, is one of the most fundamental risks faced by insurers. When claim liabilities exceed collected premiums, firms may experience financial strain, negatively affecting profitability, liquidity, and market value (Cummins & Nini, 2002; Eling & Schmeiser, 2010). This risk is particularly pronounced in volatile markets where macroeconomic factors can lead to unpredictable claim trends, as seen in Nigeria (Adams, Hardwick, & Zou, 2008). Empirical studies have established that effective underwriting practices are crucial for maintaining financial stability and investor confidence (Chen & Wong, 2004). Poorly managed underwriting risks can lead to volatile claims ratios, diminishing firm value and deterring potential investors due to perceived instability (Swiss Re Institute, 2019).

2.4. MODERATING FACTORS IN THE UNDERWRITING RISK-MARKET CAPITALIZATION RELATIONSHIP

Firm Size and Economies of Scale

Firm size has been studied as a moderator in the relationship between risk and financial performance. Larger insurers typically benefit from economies of scale, which enable them to spread and diversify risks across a broader portfolio, effectively mitigating underwriting risk (Cummins & Weiss, 2009; Adams & Buckle,

2003). Cummins and Weiss (2009) found that larger insurers often achieve higher profitability and efficiency, as they have more resources and sophisticated risk management capabilities. Similarly, Berger and Humphrey (1991) showed that economies of scale enhance technical efficiency, a factor that supports investor confidence and market valuation. Smaller firms, on the other hand, tend to have fewer resources to cushion underwriting losses, leaving them more vulnerable to adverse claims fluctuations, which can significantly impact their market capitalization (Hughes et al., 2001; Adams, 1996).

2.5. LEVERAGE AS A FINANCIAL CONSTRAINT

Leverage, or the reliance on borrowed funds, significantly affects a firm's risk-bearing capacity and capital structure. High leverage can amplify the impact of underwriting risk on market capitalization, as firms with substantial debt obligations face heightened financial strain in adverse conditions (Adams, 1996; Chen & Wong, 2004). Research suggests that investors often perceive high-leverage firms as higher risk, particularly in volatile underwriting markets, which may lead to more critical market evaluations (Harrington & Niehaus, 2003). Adams and Buckle (2003) argue that firms with moderate leverage levels often experience higher market valuations due to improved investor confidence, as lower debt burdens provide a financial cushion against underwriting losses.

2.6. PROFITABILITY AS A BUFFER AGAINST UNDERWRITING VOLATILITY

Profitability acts as a significant buffer against the volatility associated with underwriting risk, offering financial resilience to absorb unexpected claims and maintain market value (Chen, 2010; Browne & Hoyt, 1995). High profitability provides a stable revenue base that helps firms manage underwriting losses without severely impacting market value (Chen & Wong, 2004). This stabilizing effect of profitability supports investor confidence, even amid elevated claims activity, as profitable firms are perceived as more capable of weathering financial challenges (Swiss Re Institute, 2019). The relationship between profitability and underwriting risk reinforces the importance of efficient cost and claims management in sustaining market capitalization (Alhassan & Biekpe, 2016).

2.7. EMPIRICAL EVIDENCE AND RESEARCH GAPS

While existing literature has explored underwriting risk and its influence on firm performance in various contexts, there is a need for studies specific to the Nigerian insurance market, which is characterized by unique economic and structural challenges (Uche & Chikeleze, 2001; Akinlo & Apanisile, 2014). Most empirical studies are based on developed markets, where the dynamics of risk, competition, and regulation differ significantly from those in Nigeria. This study aims to fill this gap by examining the impact of underwriting risk on the market capitalization of listed Nigerian insurance firms and investigating how firm size, leverage, and profitability moderate this relationship.

This review highlights the critical role of underwriting risk management in determining firm value and stability within the insurance sector, particularly in developing markets like Nigeria. The moderating influence of firm size, leverage, and profitability on underwriting risk is well-documented in existing studies, underscoring their importance for market capitalization and investor confidence. By building on this foundation, this study will provide a comprehensive understanding of how internal characteristics shape the impact of underwriting risk on market value, thereby contributing valuable insights for practitioners, regulators, and investors in the Nigerian insurance industry and beyond.

3. METHODOLOGY

This study employs a quantitative approach, focusing on the relationship between underwriting risk and market capitalization of listed insurance companies in Nigeria, with firm size, leverage, and profitability as moderating variables. The methodology includes sample selection, data collection process, variable definitions, and econometric model specifications. The sample comprises twenty of the twenty-three insurance companies publicly listed on the Nigeria Exchange Limited (NGX) as of December 31, 2022. This selection aligns with criteria established for data availability, as data from the three excluded companies were incomplete or inaccessible. Data spanning 2011 to 2022 is gathered from publicly available sources, including the NGX, National Insurance Commission (NAICOM), and company annual reports. The study focuses on publicly listed firms, ensuring transparency and comparability in financial disclosures.

Market Capitalization (MCAP) represents firm value, which reflects investor-perceived equity valuation, encompassing various aspects of a firm's profitability, operational resilience, and growth potential. Underwriting risk is evaluated based on the Combined Ratio (CBR) and Claims Ratio (CR), defined as the ratio of claims paid to premiums collected, reflecting the core risk associated with issuing insurance policies. Firm Size (SIZE): Measured by the natural logarithm of total assets, firm size is considered for its potential to moderate underwriting risk, with larger firms expected to benefit from economies of scale. While Leverage (LEV) represents capital structure, leverage is calculated as the ratio of total debt to total assets, indicating the firm's financial reliance on borrowed funds. In addition, Profitability, measured by return on assets (ROA) and return on equity (ROE), reflects the firm's capacity to generate income relative to its assets and acts as a financial buffer against underwriting volatility.

Econometric Model Specification

These models were adapted and adjusted to suit the present study from the study of Olaiya, Olowofela, and Ariyibi (2023). To investigate the impact of underwriting risk on market capitalization and the moderating effects of firm-specific characteristics, this study uses a panel regression model with fixed effects and random effects estimations, based on Hausman tests for model selection. The model specification is as follows:

$$MCAP_{it} = \left(\gamma + \beta_1 MCAP_{it-1} + \beta_2 URISK_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 PROF_{it} + \beta_6 URISK_{it} SIZE_{it} + \beta_7 URISK_{it} LEV_{it} + \beta_8 URISK_{it} PROF_{it} + \sum_{j=1}^{k} \Delta X_{it} + \varepsilon_t\right) \quad (1)$$

where:

$MCAP_{it}$ = Market Capitalization of insurance company i in year t.
$URISK_{it}$: Underwriting risk of insurance company i in year t.
$SIZE_{it}$: Company Size
LEV_{it} : Leverage
$PROF_{it}$: Profitability
$URISK_{it}SIZE_{it}$: Underwriting Risk is moderated by the Size of the firm.
$URISK_{it}LEV_{it}$: Underwriting Risk may interact with the level of Leverage.
$URISK_{it}PROF_{it}$: Underwriting risk and Profitability
β_1 β_2 β_3 β_4Coefficient for Underwriting Risk, Company Size, Leverage and Profitability
γ: Intercept
$\beta_1 MCAP_{it-1}$: (Lagged Market Capitalization)
ε_{it}: Error term.

Estimation Procedure

The study employs fixed effects and random effects models to account for unobserved heterogeneity across firms. The Hausman test determines the appropriateness of each model.

Interaction terms are included to examine how firm size, leverage, and profitability affect the relationship between underwriting risk and market capitalization. Significant interaction coefficients indicate a moderating effect.

4. DISCUSSION OF FINDINGS

This section provides descriptive statistics for the variables used in the study, including Market Capitalization (MCAP), Return on Assets (ROA), Return on Equity (ROE), Claims Ratio, Combined Ratio, Leverage, and Size. The data covers 240 observations for each variable, offering insights into the distribution, central tendencies, and variability

Table 4. 1 Descriptive Analysis

	MCAP	ROA	ROE	CR	CBR	LEV	SIZE
Mean	21.43636	-0.32085	2.361073	34.33132	59.65068	272.9165	22.33402
Median	21.7385	2.62	9.14	28.38935	40.96789	91.6907	22.34306
Maximum	25.65052	32.07	295.47	189.7748	867.2818	14764.5	25.16935
Minimum	15.56471	69.17	650.85	0.019059	-3.97383	-281.777	20.01498
Std. Dev.	1.583214	12.5203	77.46745	24.97723	88.7694	1058.056	0.979001
Skewness	1.063904	2.77718	4.66716	2.346216	5.299974	11.35365	0.017343
Kurtosis	4.84314	13.92728	38.46541	11.80156	39.62976	150.2891	2.922337
Jarque-Bera	79.2473	1502.563	13449.24	994.8632	14540.98	222097	0.072346
Probability	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.964473
Sum	5144.727	77.0045	566.6576	8239.518	14316.16	65499.97	5360.164
Sum Sq. Dev.	599.0694	37465.13	1434288	149103	1883322	2.68E+08	229.0677
Observations	240	240	240	240	240	240	240

Author's Compilation, 2024

The mean values highlight the central tendency of the dataset, with the media providing a robust measure against skewness. For instance, MCAP has a mean of 21.44 and a median of 21.74, suggesting a symmetrical distribution. In contrast, *ROA* and *ROE* exhibit notable differences between their mean and median values, indicating potential skewness in the data. The variables exhibit substantial ranges, such as *ROE* ranging from -650.85 to 295.47, and Leverage spanning from -281.78 to 14,764.5. This highlights the presence of extreme values and the diversity of financial performance and risk metrics across the sample.

The variability in the data is captured by the standard deviation. For instance, *Leverage* has a high standard deviation (1,058.06), indicating significant heterogeneity among firms regarding financial leverage.

Most variables show skewed distributions. For example, *ROE* and *Leverage* have strong negative skewness (-4.67 and -11.35, respectively), reflecting the presence of extremely low values. Conversely, *Claims Ratio* and *Combined Ratio* are positively skewed. The kurtosis values further indicate the peakedness of the distributions, with variables such as *ROE* and *Combined Ratio* exhibiting extremely high kurtosis, suggesting heavy tails.

The Jarque-Bera test confirms the non-normality of most variables (p-values = 0.0000). However, *Size* has a Jarque-Bera probability of 0.964, indicating that it follows a normal distribution.

Table 4. 2 Correlation

	MCAP	ROA	ROE	CR	CBR	LEV	SIZE
MCAP	1						
ROA	0.198989	1					
ROE	0.272162	0.614903	1				
CR	0.09771	-0.11758	-0.13446	1			
CBR	-0.06983	-0.03819	-0.02198	0.428967	1		
LEV	-0.085014	-0.28132	-0.05678	0.011471	-0.02413	1	
SIZE	0.475528	0.332946	0.378618	-0.00575	-0.06745	0.04709	1

Author's Compilation, 2024

The correlation matrix presented in Table 4.2 provides an overview of the relationships between the key variables in the study are Market Capitalization (MCAP), Return on Assets (ROA), Return on Equity (ROE), Claims Ratio, Combined Ratio, Leverage, and Size. The analysis reveals varying degrees of linear association, with both positive and negative correlations observed.

Market Capitalization (MCAP) is positively correlated with *ROA* (0.199) and *ROE* (0.272), indicating that larger firms may generally exhibit higher profitability metrics and moderately correlated with *Size* (0.476), as expected, since larger firms tend to have higher market capitalizations but weak negative correlations with *Combined Ratio* (-0.070) and *Leverage* (-0.085), suggesting minimal association between market capitalization and these risk-related metrics.

Return on Assets (ROA) is strongly correlated with *ROE* (0.615), reflecting their interconnectedness as profitability measures and negatively correlated with *Leverage* (-0.281), implying that higher leverage might reduce return on assets also has weak positive correlation with *Size* (0.333), suggesting that larger firms may achieve slightly better returns on assets.

Return on Equity (ROE) similar to *ROA* is positively associated with *Size* (0.379) and negatively correlated with *Leverage* (-0.057), though the latter is a weaker relationship also negatively associated with *Claims Ratio* (-0.134), suggesting that higher claims payouts could impact equity returns.

Claims Ratio is positively correlated with *Combined Ratio* (0.429), as expected, since claims form a significant component of the combined ratio. Weak or negligible correlations with other variables, indicating its limited direct impact on profitability and market-related metrics.

Combined Ratio is positively associated with *Claims Ratio* (0.429), as noted, but exhibits weak negative correlations with *MCAP* (-0.070), *ROA* (-0.038), and *ROE* (-0.022). These relationships highlight their potential as an indirect risk indicator rather than a primary determinant of firm performance.

Leverage is negatively correlated with *ROA* (-0.281), revealing the adverse impact of higher leverage on asset efficiency. Minimal correlation with other variables, including *MARKET_CAP* (-0.085) and *Size* (0.047), reflecting its independence from firm size or market valuation.

Size is strongly correlated with *MCAP* (0.476) and moderately correlated with *ROA* (0.333) and *ROE* (0.379). Negligible correlations with risk indicators like *Claims Ratio* (-0.006) and *Combined Ratio* (-0.067), indicating that firm size may not directly impact these metrics.

Table 3.3. *Model Estimation Results*

Variable	Pooled	Fixed	DGMM
C	2.277529 (0.3146)	14.41394 (0.0000)	-0.349907 (0.9573)
MCAP (-1)	0.476427 (0.0000)		0.294033 (0.0225)
ROA	-0.007656 (0.4011)	0.001148 (0.9544)	-0.007333 (0.8092)
ROE	0.00133 (0.3652)	0.004203 (0.4665)	0.002847 (0.6129)
CR	0.007167 (0.0542)	-0.000971 (0.3009)	-0.005698 (0.7154)
CBR	-0.002002 (0.0512)	6.69E-05 (0.3839)	-0.000833 (0.6967)
LEV	-0.00011 (0.1823)	0.309632 (0.4593)	-0.001197 (0.0632)
SIZE	0.394314 (0.0004)	14.41394 (0.0185)	0.718035 (0.0214)
Observation	220	240	200
Number of groups			7
Number of Instrument			10
Durbin-Watson stat	2.332019	1.756207	2.072018
F-statistic	21.94407	9.459489	
Prob(F-statistic)	0.000000	0.0000	

Author's Compilation, 2024

The Model Estimation Results present the results of three econometric models used to examine the relationships among the variables: Pooled OLS, Fixed Effects (FE), and Dynamic Generalized Method of Moments (DGMM). The dependent variable is assumed to be related to market capitalization, financial performance metrics, risk indicators, and firm size. The table highlights the coefficients, their statistical significance (p-values in parentheses), and key diagnostics for each model.

In the Pooled OLS model, the constant term is positive (2.278) but statistically insignificant (p = 0.3146). In the Fixed Effects model, the constant is highly significant (14.414, p = 0.0000), suggesting an important baseline effect. In the DGMM, the constant is negative (-0.350) and statistically insignificant (p = 0.9573), reflecting potential dynamic adjustments in the model.

Lagged market capitalization (-1) has a positive and highly significant relationship in all models with Pooled OLS has coefficient of 0.476 (p = 0.0000) and DGMM: Coefficient of 0.294 (p = 0.0225). These results suggest strong persistence in market capitalization, consistent with financial theory on path dependency.

Across all models, *ROA* exhibits no significant relationship with the dependent variable with Pooled OLS has Coefficient of -0.008 (p = 0.4011). Fixed

Effects and DGMM: Coefficients near zero with p-values well above 0.05. This indicates that *ROA* may not directly influence the dependent variable in the sample.

Similarly, *ROE* shows no significant effect across all models: Pooled OLS: Coefficient of 0.001 (p = 0.3652). Fixed Effects and DGMM: Insignificant coefficients, suggesting minimal impact on the dependent variable.

Claims Ratio has Marginal significance in the Pooled OLS model (Coefficient = 0.007, p = 0.0542), implying a weak positive relationship. Insignificant in Fixed Effects and DGMM, with negative coefficients indicating variability depending on the estimation technique.

Combined Ratio shows a Weak negative relationship in Pooled OLS (Coefficient = -0.002, p = 0.0512), suggesting a potential adverse effect. Insignificant in other models, indicating that the combined ratio may not consistently explain variations in the dependent variable.

Leverage is Insignificant in Pooled OLS and Fixed Effects but In the DGMM, leverage shows a borderline significant negative effect (Coefficient = -0.001, p = 0.0632), suggesting that higher leverage might slightly dampen the dependent variable under dynamic conditions.

Firm size demonstrates a positive and statistically significant effect in all models having Pooled OLS with Coefficient = 0.394 (p = 0.0004). Fixed Effects: Coefficient = 14.414 (p = 0.0185). DGMM: Coefficient = 0.718 (p = 0.0214). This finding shows the critical role of firm size as a determinant of the dependent variable.

Durbin-Watson Statistic Values near two across all models indicate no significant autocorrelation issues and in the DGMM, the J-statistic (0.8991) supports the validity of the instruments used.

5. CONCLUSION

The study employed three econometric models Pooled OLS, Fixed Effects (FE), and Dynamic Generalized Method of Moments (DGMM) to examine the relationships between market capitalization, financial performance metrics, risk indicators, and firm size. The findings indicate that lagged Market Capitalization has a positive and highly significant relationship across all models, underscoring its persistence and alignment with financial theory on path dependency. Firm Size emerged as a critical determinant, consistently showing a positive and statistically significant effect on all models, highlighting its role in driving the dependent variable. Performance metrics such as ROA and ROE demonstrated no significant influence across all models, suggesting limited direct relevance in this context. Risk indicators, particularly the Claims Ratio and Combined Ratio, exhibited mixed results. While the Claims Ratio showed marginal significance in the Pooled OLS model, its effect was not robust across other estimation techniques. Leverage had a borderline significant negative effect on the DGMM model, suggesting that high leverage might exert a slight dampening effect under dynamic conditions. Diagnostics reveal that the Fixed Effects model provided the best fit, explaining the most variance, while the DGMM offered insights into dynamic adjustments but with weaker explanatory power.

RECOMMENDATIONS

Firms should prioritize strategies to enhance their scale and operational capacity, as firm size plays a significant role in determining the dependent variable. This could involve mergers, acquisitions, or expanding operations to achieve economies of scale. Policymakers and stakeholders should support initiatives that improve market capitalization, such as enhancing corporate governance, transparency, and investor confidence, to sustain its persistence and positive impact. While the Claims Ratio and Combined Ratio did not consistently exhibit robust effects, firms should continue to refine their risk management strategies to optimize these metrics, as they might have context-specific relevance. Firms should carefully monitor their leverage levels to avoid potential negative impacts, especially under dynamic market conditions. Adopting balanced capital structures and prudent debt management practices is recommended.

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ANNEX 1

DESCRIPTIVE ANALYSIS

	MARKET_CAP	_ROA_	_ROE_	CLAIMS_RATIO	COMBINE_RATIO	LEVERAGE	SIZE
Mean	21.43636	-0.32085	2.361073	34.33132	59.65068	272.9165	22.33402
Median	21.7385	2.62	9.14	28.38935	40.96789	91.6907	22.34306
Maximum	25.65052	32.07	295.47	189.7748	867.2818	14764.5	25.16935
Minimum	15.56471	-69.17	-650.85	0.019059	-3.97383	-281.777	20.01498
Std. Dev.	1.583214	12.5203	77.46745	24.97723	88.7694	1058.056	0.979001
Skewness	-1.063904	-2.77718	-4.66716	2.346216	5.299974	11.35365	0.017343
Kurtosis	4.84314	13.92728	38.46541	11.80156	39.62976	150.2891	2.922337
Jarque-Bera	79.2473	1502.563	13449.24	994.8632	14540.98	222097	0.072346
Probability	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.964473
Sum	5144.727	-77.0045	566.6576	8239.518	14316.16	65499.97	5360.164
Sum Sq. Dev.	599.0694	37465.13	1434288	149103	1883322	2.68E+08	229.0677
Observations	240	240	240	240	240	240	240

CORRELATION

	MARKET_CAPI	_ROA_	_ROE_	CLAIMS_RATIO	COMBINE_RATIO	LEVERAGE	SIZE
MARKET_CAP	1	0.198989	0.272162	0.09771	-0.06983	-0.08501	0.475528
ROA	0.198989	1	0.614903	-0.11758	-0.03819	-0.28132	0.332946
ROE	0.272162	0.614903	1	-0.13446	-0.02198	-0.05678	0.378618
CLAIMS_RATIO	0.09771	-0.11758	-0.13446	1	0.428967	0.011471	-0.00575
COMBINE_RATIO	-0.06983	-0.03819	-0.02198	0.428967	1	-0.02413	-0.06745
LEVERAGE	-0.085014	-0.28132	-0.05678	0.011471	-0.02413	1	0.04709
SIZE	0.475528	0.332946	0.378618	-0.00575	-0.06745	0.04709	1

POOLIED EFFECT REGRESSION
Dependent Variable: MARKET_CAPITALIZATION
Method: Panel Least Squares
Date: 11/03/24 Time: 17:39
Sample (adjusted): 2012 2022
Periods included: 11
Cross-sections included: 20
Total panel (balanced) observations: 220

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.277529	2.259314	1.008062	0.3146
MARKET_CAPITALIZATION (-1)	0.476427	0.061779	7.711829	0
ROA	-0.007656	0.0091	-0.84134	0.4011
ROE	0.00133	0.001465	0.907512	0.3652
CLAIMS_RATIO	0.007167	0.003702	1.93612	0.0542
COMBINE_RATIO	-0.002002	0.001021	-1.96075	0.0512
LEVERAGE	-0.00011	8.25E-05	-1.3381	0.1823
TOTAL_PREMIUMS_EARNED	0.394314	0.109049	3.615926	0.0004

R-squared	0.420145	Mean dependent var	21.38344
Adjusted R-squared	0.400999	S.D. dependent var	1.60957
S.E. of regression	1.24573	Akaike info criterion	3.313006
Sum squared resid	328.9905	Schwarz criterion	3.43641

Log likelihood	-356.4306	Hannan-Quinn criter.	3.36284
F-statistic	21.94407	Durbin-Watson stat	2.332019
Prob(F-statistic)	0		

FIXED EFFECT
Dependent Variable: MARKET_CAPITALIZATION
Method: Panel Least Squares
Date: 11/03/24 Time: 18:21
Sample: 2011 2022
Periods included: 12
Cross-sections included: 20
Total panel (balanced) observations: 240

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	14.41394	2.955193	4.877496	0.0000
ROA	0.00064	0.011182	0.057232	0.9544
ROE	0.001148	0.001574	0.729555	0.4665
CLAIMS_RATIO	0.004203	0.004052	1.037077	0.3009
COMBINE_RATIO	-0.000971	0.001113	-0.87262	0.3839
LEVERAGE	6.69E-05	9.02E-05	0.741268	0.4593
TOTAL_PREMIUMS_EARNED	0.309632	0.130413	2.374249	0.0185

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.524959	Mean dependent var	21.43636
Adjusted R-squared	0.469463	S.D. dependent var	1.583214
S.E. of regression	1.153181	Akaike info criterion	3.224929
Sum squared resid	284.5827	Schwarz criterion	3.601998
Log likelihood	-360.9914	Hannan-Quinn criter.	3.37686
F-statistic	9.459489	Durbin-Watson stat	1.756207
Prob(F-statistic)	0.0000		

DIFFERENCE GMM

Dependent Variable: MARKET_CAPITALIZATION
Method: Panel Generalized Method of Moments
Date: 11/03/24 Time: 18:09
Sample (adjusted): 2013 2022
Periods included: 10
Cross-sections included: 20
Total panel (balanced) observations: 200
2SLS instrument weighting matrix
Instrument specification: MARKET_CAPITALIZATION (-1) C
MARKET_CAPITALIZATION (-2) _ROA_ (-1) _ROE_ (-1) CLAIMS_RATIO (
-1) COMBINE_RATIO (-1) LEVERAGE (-1) TOTAL_PREMIUMS_EARNED
(-1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.349907	6.532466	-0.05356	0.9573
MARKET_CAPITALIZATION (-1)	0.294033	0.127864	2.299569	0.0225
ROA	-0.007333	0.030324	-0.24183	0.8092
ROE	0.002847	0.005617	0.506783	0.6129
CLAIMS_RATIO	-0.005698	0.015607	-0.3651	0.7154
COMBINE_RATIO	-0.000833	0.002135	-0.39035	0.6967
LEVERAGE	-0.001197	0.000641	-1.86849	0.0632
TOTAL_PREMIUMS_EARNED	0.718035	0.309478	2.320152	0.0214

R-squared	-0.309094	Mean dependent var	21.32969
Adjusted R-squared	-0.356821	S.D. dependent var	1.592054
S.E. of regression	1.854467	Sum squared resid	660.297
Durbin-Watson stat	2.072018	J-statistic	0.899108
Instrument rank	900%	Prob(J-statistic)	0.343021