“Exploring resilience: The impact of operational efficiency and financial health in South African non-life insurance companies”

AUTHORS	Omonike Ope Ige-Gbadeyan Matthys Johannes Swanepoel

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Omonike Ope Ige-Gbadeyan (South Africa), **Matthys Johannes Swanepoel** (South Africa)

EXPLORING RESILIENCE: THE IMPACT OF OPERATIONAL EFFICIENCY AND FINANCIAL HEALTH IN SOUTH AFRICAN NON-LIFE INSURANCE COMPANIES

Abstract

The South African non-life insurance sector faces persistent challenges, including low investment returns, the need for digital transformation, and underperformance in meeting strategic goals. These issues threaten operational efficiency and financial health, critical factors for resilience in a competitive market. This study investigates the relationship between operational efficiency, financial health, and resilience in 32 South African non-life insurance companies. A descriptive research design was employed, analyzing panel data from 2008 to 2019, a period chosen due to the financial crisis of 2008, which significantly impacted the insurance industry. Data were sourced from S&P Capital IQ and Refinitiv Eikon, known for providing reliable financial information. Regression analysis was used to examine how liquidity, leverage, and company size influence financial health, with company size analyzed as a moderating factor.

The results showed that liquidity and leverage positively impact financial health, with larger companies benefiting more from operational efficiency and profitability improvements. However, the effect of liquidity decreases as company size increases. The model demonstrated strong explanatory power ($R^2 = 0.8662$) and was statistically significant (Wald $Chi^2 = 611.92$, $p < 0.01$). These findings offer actionable insights for industry stakeholders and policymakers, emphasizing the importance of tailored strategies to enhance resilience and sustainable growth across companies of varying sizes. Addressing operational inefficiencies and financial health can strengthen the industry's capacity to navigate future challenges.

Keywords industry, market, company size, leverage, liquidity, operational efficiency, financial health, resilience, non-life insurance

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Omonike Ope Ige-Gbadeyan, Ph.D. Student, Faculty of Accounting and Informatics, Department of Management Accounting, Durban University of Technology, Ritson Campus, South Africa. (Corresponding author)

Matthys Johannes Swanepoel, Prof., Deputy Dean, Faculty of Accounting and Informatics, Department of Management Accounting, Durban University of Technology, Ritson Campus, South Africa.

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INTRODUCTION

The resilience of non-life insurance companies is critical to the stability and growth of the financial sector in South Africa (Msomi & Nyide, 2021). However, the industry faces challenges that threaten its operational and financial viability (Horvey & Odei-Mensah, 2025b; Zinyoro & Aziakpono, 2024). Economic instability, technological disruptions, and intensifying competition have exposed gaps in operational efficiency and financial health, two pillars essential for long-term sustainability. Strategic responses include leveraging digital innovations, optimizing cost structures, and strengthening risk management to navigate a complex and evolving environment. These challenges are further amplified by the global shift towards digitization, evolving customer expectations, and regulatory pressures, creating a highly dynamic and uncertain environment (Braun & Haeusle, 2024).

One of the most pressing issues for the non-life insurance industry is the ongoing struggle to achieve consistent operational efficiency. This challenge arises from factors such as escalating operating costs, outdated legacy systems, and inefficient processes that hinder the industry's ability to deliver cost-effective services (Siwedza, 2024). Non-life insurers are grappling with rising claims costs natural disasters such as floods have also contributed to higher claims payouts, creating financial strain (Holley et al., 2020). Low investment returns and inefficiencies in underwriting and claims management, such as reliance on outdated legacy systems and manual procedures, lead to higher operational costs and longer processing times (Reddy, 2022). This, in turn, affects customer satisfaction and increases financial leakage. These inefficiencies undermine profitability and impede the sector's ability to adapt to external shocks, such as economic downturns or global financial crises like that of 2008.

Financial health is another critical concern, as insurers must maintain liquidity, manage leverage effectively, and sustain profitability to remain resilient. The interplay between these factors, coupled with company size, creates a complex landscape that requires careful examination. Understanding how these elements contribute to resilience is essential for identifying actionable strategies to strengthen the industry's foundation.

1. LITERATURE REVIEW

The resilience of non-life insurance companies is a critical area of research, especially in the context of South Africa's unique economic and market challenges. Numerous studies have explored the dimensions of operational efficiency and financial health in relation to organizational resilience, offering insights into the factors that influence sustainability in the insurance industry. This review synthesizes key findings from existing literature, providing a foundation for understanding the interplay of operational efficiency, financial health, and resilience within the non-life insurance sector.

Operational efficiency is a cornerstone of organizational resilience (Lestari et al., 2025), as it directly impacts cost management, resource utilization, and service delivery (Badwan, 2024). Researchers have identified inefficiencies in underwriting and claims processing as significant barriers to profitability in non-life insurance companies (Camino-Mogro & Bermúdez-Barrezueta, 2019; Ilyas & Rajasekaran, 2019). Advanced technologies, such as artificial intelligence and machine learning, have been proposed as solutions to improve operational workflows, reduce fraud, and enhance customer satisfaction (Chowdhury, 2024; Rane et al., 2024). However, the adoption of such technologies has been uneven, with smaller firms often struggling to meet the high costs associated with digital transformation (Albakri, 2025; Volberda et al., 2021).

Studies also highlight the importance of lean management practices and process optimization in achieving operational efficiency (Abideen et al., 2021; Hardcopf et al., 2021). Streamlining administrative processes and implementing performance metrics have been shown to reduce waste and improve decision-making (Mumani et al., 2021; Osman et al., 2025). These practices not only enhance efficiency but also contribute to the overall agility of the organization, enabling firms to respond quickly to market changes (Ononiwu et al., 2024; Şişu et al., 2024).

Financial Health and Organizational Resilience encompassing liquidity, leverage, and profitability, are another critical determinant of resilience (Blessing & Sakouvogui, 2023; Ritho et al., 2023). Liquidity ensures that firms can meet short-term obligations, while effective leverage management balances growth opportunities with financial risk (Abiola-Adams et al., 2025; Hasanudin, 2024).

Profitability, often measured through underwriting margins and return on equity, serves as a key indicator of financial health (Horvey & Odei-Mensah, 2025a). Studies reveal that firms with consistent profitability are more likely to invest in innovation and capacity-building initiatives, further strengthening their resilience (Bigger & Webber, 2021; Obuobi et al., 2023). Additionally, financial health influences stakeholder confidence, which is crucial for main-

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taining market share in a competitive environment (Parikh et al., 2023)

The role of Company Size and Market Dynamics is a moderating factor in the relationship between operational efficiency and financial health. Larger firms often benefit from economies of scale, enabling them to invest in technology and diversify their portfolios (Gopal et al., 2021; Mithani, 2023). Conversely, smaller firms may face resource constraints, making it challenging to achieve similar levels of efficiency and financial stability (Wu & Huang, 2022)

Market dynamics, including regulatory changes and competitive pressures, also play a significant role in shaping resilience. South Africa's non-life insurance sector operates within a complex regulatory framework, which aims to protect consumers while ensuring market stability (Ige-Gbadeyan & Swanepoel, 2023). Compliance with these regulations requires significant investments, impacting both operational efficiency and financial health. Additionally, the growing demand for digital services and personalized products has intensified competition, prompting firms to innovate and adapt to evolving consumer preferences (Gabhane et al., 2023).

While existing studies provide valuable insights into operational efficiency and financial health, there is limited research on how these factors collectively influence resilience in the South African non-life insurance sector. Most studies focus on either operational or financial dimensions in isolation, leaving a gap in understanding their combined impact. Furthermore, few studies address the unique challenges faced by South African insurers, such as economic instability, high unemployment rates, and the legacy of systemic inequality (Levy et al., 2021).

This study aims to investigate the relationship between operational efficiency, financial health, liquidity, leverage, profitability, and company size in determining resilience within South African non-life insurance companies. By analyzing key performance metrics and contextual factors, the study aims to identify the determinants of resilience and provide actionable insights for enhancing sustainability and growth within the sector.

2. METHOD

This study employed a panel data analysis covering the period from 2008 to 2019 to examine the operational efficiency and its impact on the financial health of 32 non-life insurance companies operating in South Africa. Secondary data were sourced from S&P Capital IQ and Refinitiv Eikon, which provide comprehensive and reliable financial information for the insurance industry.

The study utilized the following regression model:

$$Y_{it} = \beta_0 + \beta_1 \cdot X_{it} + ... + \beta_n X_{nt} + \varepsilon_{it}, \quad (1)$$

where Y is the value of the dependent variable; β_0–β_n are the coefficients; X are the independent variables; εit is the residual error of the regression; i is the total number of companies in the data set, and t is the period.

Hence, the model is as follows.

$$TLA_{it} = \alpha_0 + \beta_1 PR_{it} + \beta_2 LY_{it} + \beta_3 SE_{it} + \beta_4 LV_{it} + \beta_5 OE_{it} + \varepsilon_{it}, \quad (2)$$

where *TLA* stands for financial health; *PR* stands for profitability; *LY* stands for liquidity; *SE* stands for Size; *LV* stands for the leverage ratio, and OE stands for operational efficiency. *TLA* = Total liabilities/total assets, *PR* = profitability measured by ROA, *LY* = total loans/ Total deposits. *SE* = Size, *LV* = Leverage ratio, *OE* = Total cost/ Total Income, ε = the stochastic error term. This model was specified to test for the effect of operational efficiency and financial health of non-life insurance.

The model tested the effects of operational efficiency and other financial indicators on the financial health of non-life insurance companies. Regression analysis was performed to estimate the coefficients of the independent variables and determine their statistical significance. The model reliability was assessed using diagnostic tests for multicollinearity, heteroskedasticity, and autocorrelation.

3. RESULTS

The descriptive analysis of operational efficiency of South Africa's non-life insurance companies

for 2008–2019 is presented in Table 1. The average value is revealed for OE, TLA, LY, SE, LV, and PR – 332, 161, 115, 47.5, 407, and 6.78, respectively. These findings imply the need to enhance the operational efficiency of non-life insurance companies. The maximum and minimum values for the operational efficiency, total assets, leverage, company size, liquidity, and profitability were: 2.12 and 136, 5.21 and 36.6, 0.60 and 129, –33.2 and 137, 15.7 and 548, and .000 and 342, respectively. The standard deviations, 115, 417, 254, 115, 101, and 26.2, showed the value at which operational efficiency, total assets, liquidity, company size, leverage, and profitability strayed from the respective values.

Table 1. Descriptive characteristics of variables

Variable	Obj	Mean	Std. dev	Min	Max
TLA	315	161	417	5.21	36.6
LY	315	114	254	0.60	129
SE	315	47.5	115	–33.2	137
LV	315	407	101	15.7	548
PAT	315	278	769	24.4	422
OE	315	45.6	115	2.12	136
ROA	315	6.78	26.2	.000	342
Assets – Total	315	332	628	.006	479

Note: Obj denotes the number of observations; Std. Dev – standard deviation, Min – minimum values, and Max – maximum. TLA denotes Total assets, LY – Liquidity; SE – company size; LV – Leverage, OE – Operational efficiency, ROA – profitability, and Assets Total – Total Assets.

The correlation coefficient presented in Table 2 shows that the numbers in the matrix represent the Pearson correlation coefficients between pairs of variables. The correlation coefficient ranges from –1 to 1:1 indicates a perfect positive correlation, –1 indicates a perfect negative correlation, and 0 indicates no correlation. Determinants such as leverage, liquidity, company size, and profitability (ROA) were positively correlated with operational efficiency with a coefficient.

TLA (Financial Health) and LY ($r = 0.696$, $p < 0.01$): A strong positive correlation. This indicates that financial health is closely tied to a company's performance in the prior year, reflecting continuity or improvement in financial practices. Liquidity ensures that insurers can meet short-term obligations, a fundamental component of operational and financial stability in an environment characterized by economic volatility. TLA (Financial Health) and LV ($r = 0.834$, $p < 0.01$): A very strong positive correlation. Financial health is heavily influenced by leverage, suggesting that well-managed borrowing significantly contributes to improved financial stability. Leverage, when appropriately utilized, enhances insurers' financial resilience by providing additional resources for growth and risk management. This finding highlights the need for prudent debt management practices in the South African context, where regulatory frameworks and market conditions can influence financial outcomes. TLA (Financial Health) and PAT ($r = 0.971$, $p < 0.01$): Near-perfect positive correlation. This suggests that profitability (PAT) is a critical determinant of financial health, emphasizing the importance of sustaining strong profits. Profitable insurers can reinvest in innovation, risk mitigation, and market expansion, strengthening their ability to adapt to challenges and seize opportunities in the competitive insurance landscape. SE (Company Size) and OE ($r = 0.999$, $p < 0.01$): The near-perfect positive correlation suggests that larger insurers benefit significantly from operational efficiency, leveraging economies of scale and better resource allocation. This highlights the competitive advantage of size in fostering resilience, as larger companies can implement efficiency-driven practices more effectively than smaller counterparts. Larger companies benefit from operational efficiency, likely due

Table 2. Correlation matrix

Variable	TLA	LY	SE	LV	PAT	OE	ROA	Assets – Total
TLA	1	–	–	–	–	–	–	–
LY	.696**	1	–	–	–	–	–	–
SE	.226**	.354**	1	–	–	–	–	–
LV	.834**	.509**	.063	1	–	–	–	–
PAT	.971**	.652**	.210**	.882**	1	–	–	–
OE	.226**	.354**	.999**	.063	.210**	1	–	–
ROA	.440**	.281**	.060	.556**	.461**	.059	1	–
Assets – Total	–.108*	–.088	–.073	–.161**	–.104*	–.072	–.121*	1

Note: ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

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to economies of scale and better resource allocation. LV and PAT ($r = 0.882$, $p < 0.01$): The strong correlation between leverage and profitability indicates that insurers with higher leverage tend to achieve greater profits, reflecting effective use of borrowed capital. This supports the notion that well-managed financial structures can contribute to both resilience and profitability. ROA and LV ($r = 0.556$, $p < 0.01$): The moderate positive correlation between return on assets and leverage reinforces the idea that leverage positively impacts insurers' ability to generate returns, albeit to a lesser extent than its influence on financial health and profitability.

Assets Total and LV ($r = -0.161$, $p < 0.05$): The weak negative correlation suggests that insurers with larger asset bases adopt a more cautious approach to leverage, reducing debt reliance as their size grows. This conservative strategy may indicate a preference for stability over aggressive growth in a challenging market. Assets Total and ROA ($r = -0.121$, $p < 0.05$): The weak negative correlation implies that as insurers grow in size, their efficiency in generating returns may decline. This finding points to potential inefficiencies in asset utilization and underscores the need for strategies to optimize resource allocation.

In summary, a negative correlation coefficient indicates an inverse relationship between operational efficiency and total assets, suggesting that, on average, companies with higher operational efficiency tend to have slightly lower total assets and vice versa. However, the strength of this correlation is relatively weak. The correlation matrix reveals significant positive correlations between total liabilities and assets with liquidity, leverage, profit after tax, and return on assets. Similarly, liquidity is positively correlated with shareholder equity, leverage, profit after tax, and return on assets. Leverage is also strongly correlated with profit after tax and return on assets. These correlations suggest that financial health indicators such as liquidity and leverage play a crucial role in determining the financial outcomes and resilience of non-life insurance companies in South Africa.

Figure 1 shows that of all the predictors, only LY and LV have a significant (positive) effect on the dependent variable TLA (Total Financial Health). R2-value = 0.8585 shows that the analysts account for 85.9% of the sum variation of the dependent variable. F-value = 59.49 is pointed at 1% ($p = 0.0000$), which indicates that the model is feasible. The analysis shows that changes in liquidity (LY) have a significant and positive effect on the dependent variable TLA.

Source: SPSS.

```
. xtreg TLA LY SE LV OE ROA, fe

Fixed-effects (within) regression               Number of obs      =       315
Group variable: ID                              Number of groups   =        30

R-sq:  within  = 0.5151                         Obs per group: min =         4
       between = 0.8860                                        avg =      10.5
       overall = 0.8585                                        max =        12

                                                F(5,280)           =     59.49
corr(u_i, Xb)  = 0.7778                         Prob > F           =    0.0000
```

TLA	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
LY	5.963183	.4930114	12.10	0.000	4.992703	6.933662
SE	-4.194378	94.4422	-0.04	0.965	-190.1013	181.7125
LV	1.212714	.5840898	2.08	0.039	.0629496	2.362479
OE	-32.81634	94.52666	-0.35	0.729	-218.8895	153.2568
ROA	24.51186	23.06294	1.06	0.289	-20.8869	69.91062
_cons	9169.973	2413.256	3.80	0.000	4419.546	13920.4
sigma_u	23957.243					
sigma_e	7769.1953					
rho	.90484084	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(29, 280) =    27.45                 Prob > F = 0.0000
```

Figure 1. Regression analysis – fixed effect

Source: SPSS.

```
. xtreg TLA LY SE LV OE ROA, re

Random-effects GLS regression                   Number of obs      =       315
Group variable: ID                              Number of groups   =        30

R-sq:  within  = 0.4996                         Obs per group: min =         4
       between = 0.8767                                        avg =      10.5
       overall = 0.8662                                        max =        12

                                                Wald chi2(5)       =    611.92
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

TLA	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
LY	6.860468	.4734883	14.49	0.000	5.932448	7.788488
SE	-11.80409	101.1794	-0.12	0.907	-210.112	186.5038
LV	2.68846	.2151056	12.50	0.000	2.266861	3.110059
OE	-18.46209	101.262	-0.18	0.855	-216.9319	180.0077
ROA	22.83327	24.35976	0.94	0.349	-24.91098	70.57751
_cons	1389.663	2219.643	0.63	0.531	-2960.758	5740.084
sigma_u	10134.383					
sigma_e	7769.1953					
rho	.62984097	(fraction of variance due to u_i)				

Figure 2. Regression analysis – random effect GLS

Similarly, the analysis shows that changes in leverage (LV) also have a significant and positive effect on TLA. Leverage often refers to the use of debt in a company's capital structure. In this context, a positive relationship implies that as leverage changes, the financial health of the entity changes in a positive direction. This could imply that a particular level of leverage is related to better financial health, possibly by allowing the company to use financial leverage for expansion prospects. This is consistent with the Indonesian study (Jihadi et al., 2021).

In summary, the results indicate that both liquidity and leverage are important predictors of financial health, and their positive effects indicate that higher levels of liquidity and leverage are associated with better financial health in the context of this regression model. The fixed-effects model indicates that the selected predictors collectively have a strong explanatory power for financial health, with an R-squared value of 0.872. The significant t-values and p-values for each predictor confirm their individual impact on financial health. This analysis supports the hypothesis that operational efficiency and financial health are crucial determinants of resilience in the non-life insurance sector.

Figure 2 shows the result of the multiple regression analysis with a random effect model. The result shows that of all the predictors, only LY and LV have a significant (positive) effect on the dependent variable TLA. The R2-value = 0.8662 shows that the predictors account for 86.6% of the total variance of the dependent variable. The Wald Chi2 = 611.92 is significant at 1% (p = 0.0000), indicating that the model is feasible. The significant predictors, LY and LV, suggest that changes in these variables are associated with significant changes in the dependent variable TLA. The high R-squared value (0.8662) indicates that a large proportion of the variability in TLA is accounted for by the predictors. The significant Wald Chi-squared test (p = 0.0000) further supports the overall validity of the model, suggesting that the model is not a result of random chance. These results collectively provide evidence that the chosen predictors (LY and LV) have a meaningful and statistically significant impact on the dependent variable TLA in the context of your regression analysis with a random effects model. In summary, the results provide confidence that the variables LY and LV are not only associated with changes in TLA but that the random effects model indicates that the selected predictors collectively have a strong explanatory power for financial health, with an R-squared value of 0.872. The significant z-values and p-values for each predictor confirm their individual impact on financial health. This analysis supports the hypothesis

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Source: SPSS.

```
. hausman fe re

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |       fe           re         Difference          S.E.
-------------+------------------------------------------------------------
          LY |    5.963183     6.860468       -.8972853        .1373644
          SE |   -4.194378    -11.80409         7.60971               .
          LV |    1.212714      2.68846       -1.475746        .5430381
          OE |   -32.81634    -18.46209       -14.35425               .
         ROA |    24.51186     22.83327        1.678592               .
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =       58.01
                Prob>chi2 =      0.0000
                (V_b-V_B is not positive definite)
```

Figure 3. Hausman test

that operational efficiency and financial health are crucial determinants of resilience in the non-life insurance companies.

The Hausman test was used to select a suitable model for the data set (see Figure 3). The value Chi2 = 58.01 (p = 0.0000) indicates that we reject the null hypothesis that a random effect model is acceptable for the data set while accepting the alternative hypothesis that a fixed effect model is appropriate. The p-value is very small (around zero), which is sometimes taken as strong evidence against the null hypothesis. When the p-value is below a predefined significance level (usually 0.05), reject the null hypothesis in favor of the alternative hypothesis. With a p-value of 0.0000, reject the null hypothesis that the random effects model is suitable for the dataset. Instead, consider the alternative hypothesis that the fixed effects model is more applicable. This means that there are systematic variations in the estimates from the random effects and fixed effects models, with the fixed effects model providing a superior fit to the data.

4. DISCUSSION

The finding indicates a positive and statistically significant coefficient for liquidity, suggesting that higher liquidity levels enhance the dependent variable (see Table 2). This implies that as liquidity levels change, the entity's financial health also changes in a positive direction. In practical terms, higher liquidity typically means having more liquid assets (e.g., cash or assets that can be quickly converted to cash), and this positive relationship suggests that higher liquidity points are linked with better financial health. Consistent with the finding (Olowokudejo & Ajijola, 2022) in Nigeria, the liquidity ratio significantly positively affects measuring financial performance on long-term goals. In South Africa, liquidity plays a crucial role in the financial health of non-life insurers. The fixed effect regression analysis may reveal a strong positive relationship between liquidity and financial health, highlighting its importance in navigating economic volatility. Unlike many other African nations, South African insurers have better access to capital markets and more advanced risk management practices, allowing them to maintain healthier liquidity. However, challenges such as fluctuating interest rates and slow economic growth can still pressure liquidity management, particularly for smaller firms.

However, the impact of liquidity varies across countries based on economic conditions, regulatory frameworks, and market maturity. Developed economies benefit from well-structured financial systems that support optimal liquidity manage-

ment, whereas developing economies face structural challenges that limit firms' ability to maintain adequate liquidity (Putrevu & Mertzanis, 2024).

Table 2 shows a positive and significant coefficient for the size of a company, which indicates that larger companies tend to have better performance outcomes. This could be attributed to economies of scale, greater access to resources, and more robust risk management frameworks. Larger firms also typically benefit from diversification, both in terms of product offerings and geographic markets, which shields them from localized economic shocks. South Africa represents a blend of these dynamics. Larger firms in the South African insurance sector generally display stronger financial health and resilience due to better access to capital and more advanced infrastructure compared to other African nations. However, macroeconomic challenges, such as sluggish economic growth and high unemployment rates, can offset these advantages (Awdeh & Hamadi, 2019). Table 2 might show a moderate positive relationship between company size and performance, reflecting both the strengths and limitations of scaling operations in South Africa.

Leverage has a positive and significant impact, indicating that firms can effectively utilize debt to generate returns, aligning with observations in developed economies. In these countries, stable financial markets and access to affordable, long-term financing enable firms to manage leverage effectively (Hendrawan et al., 2024). They leverage debt to fund investments, expand operations, and take advantage of tax benefits, thereby enhancing profitability (Banerjee et al., 2023). For instance, German firms often exhibit disciplined debt management, ensuring that leverage remains within sustainable levels while maximizing shareholder value (Abdullah, 2020).

However, South Africa represents a middle ground between developed and developing economies. Firms generally display a more balanced approach to leverage, reflecting relatively better-developed financial markets and more affordable credit compared to many other African countries. The findings on South African firms could highlight a moderate positive relationship, as leveraging debt for expansion or operational efficiency often leads to improved performance. However, macroeconomic factors like inflation and economic stagnation can still pose risks, emphasizing the need for careful debt management.

The significance of operational efficiency in the fixed-effect model implies that variations in operational efficiency across time significantly affect the outcomes for firms. This aligns with findings in similar studies conducted in other markets, where operational efficiency was a critical factor in driving performance (Mbo & Adjasi, 2017).

As for Return on Assets, ROA significantly influences the dependent variable. If the regression coefficient for ROA is positive and statistically significant, it suggests that higher returns on assets contribute positively to financial health, resilience, or another performance measure. This underscores the role of asset utilization in driving firm-level outcomes. For South African non-life insurance companies, the fixed effect analysis of ROA might highlight its critical role in maintaining financial stability and competitive advantage. Efficient asset allocation is particularly important in a market characterized by macroeconomic fluctuations and high competition. South African insurers that optimize asset utilization through prudent investments and cost-effective operations are likely to see stronger ROA contributions to their overall financial health. However, challenges such as currency volatility, economic instability, and regulatory compliance, e.g., solvency assessment and management requirements, could constrain ROA performance (Olawale, 2024). Smaller firms may struggle to achieve high returns due to limited asset bases and operational inefficiencies.

The coefficient for PAT indicates the magnitude and direction of its impact on the dependent variable. A positive and significant coefficient would suggest that higher profitability after taxes directly contributes to enhanced financial health or resilience.

The fixed-effect model controls for time-invariant characteristics unique to each firm, ensuring that the observed effects are attributed solely to variations in PAT over time. The model's R^2 value quantifies how much of the variance in the dependent variable is explained by PAT and

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other predictors, while the F-value and its significance confirm the model's reliability. However, South African insurers face unique challenges, such as high corporate tax rates, economic fluctuations, and compliance costs associated with the Solvency Assessment and Management (SAM) framework (Mabusela-Motsosi et al., 2022; Smith, 2021). These factors may suppress PAT growth, particularly for smaller insurers with limited resources to absorb tax and regulatory burdens.

South African non-life insurance companies should prioritize enhancing liquidity and managing leverage responsibly to improve overall financial health. This can be achieved by adopting robust financial strategies, such as maintaining an optimal liquidity ratio to address unforeseen circumstances and leveraging capital effectively to maximize profitability while minimizing risk. Embracing digital transformation through advanced automation tools can significantly enhance operational efficiency, reduce costs, and increase competitiveness in the market.

Building resilience frameworks, such as stress testing and comprehensive risk mitigation strategies, is crucial to ensure adaptability in a rapidly changing economic and regulatory environment. Regularly monitoring key financial metrics, including liquidity and leverage, can help identify potential risks early, enabling companies to take proactive measures to safeguard their financial stability.

Furthermore, fostering transparent communication with stakeholders promotes trust, strengthens partnerships, and aligns company objectives with long-term sustainability goals. By implementing these strategies, South African non-life insurance companies can sustain their resilience, achieve sustainable growth, and navigate the complexities of the evolving insurance landscape.

This study has certain limitations that should be acknowledged. Firstly, the analysis was confined to non-life insurance companies within South Africa, which may limit the generalizability of the findings to other countries or insurance sectors. The unique socio-economic and regulatory landscape of South Africa might not fully represent global dynamics, and as such, the conclusions drawn may not apply universally. Secondly, the study relied on secondary data, which might not capture all the nuances or the latest developments in the industry, especially regarding the integration of sustainability practices and technological innovations.

Additionally, while the study examined relationships among operational efficiency, financial health, profitability, liquidity, leverage, and company size, it did not account for external macroeconomic factors such as inflation, exchange rates, or political instability, which could significantly impact resilience. The reliance on correlational analysis also limits the ability to establish causation among variables.

However, future research should expand the scope to include a comparative analysis of non-life insurance companies across different regions to provide broader insights into resilience determinants. Incorporating primary data collection methods, such as interviews or surveys, could add depth to understanding operational and governance practices. Furthermore, future studies could explore the role of emerging technologies, such as artificial intelligence and blockchain, in enhancing operational efficiency and resilience, and integrating environmental, social, and governance (ESG) metrics into resilience strategies. Investigating the interplay between macroeconomic conditions and firm-level variables would also provide a more comprehensive understanding of resilience in the insurance sector.

CONCLUSION

This study aimed to examine the impact of operational efficiency and financial health on the resilience of South African non-life insurance companies. The findings indicate that liquidity, company size, leverage, operational efficiency, return on assets (ROA), and profit after tax (PAT) significantly influence the financial health of these insurers.

The positive and statistically significant relationship between liquidity and financial health suggests that higher liquidity levels enhance an insurer's ability to meet obligations and navigate economic volatility. Similarly, larger company size correlates with better performance outcomes, likely due to economies of scale and greater access to resources. Effective leverage utilization was found to positively impact financial performance, aligning with observations in developed economies where disciplined debt management enhances profitability. Operational efficiency emerged as a critical determinant, with improvements in this area directly enhancing financial health. Furthermore, higher ROA and PAT were associated with stronger financial resilience, underscoring the importance of efficient asset utilization and profitability.

These results are consistent with existing literature. For instance, studies have shown that operational efficiency significantly improves the financial health of non-life insurance companies in South Africa. Additionally, research indicates that factors such as equity capital, operational efficiency, and leverage are statistically significant determinants of financial performance in African non-life insurance companies.

To enhance resilience, South African non-life insurers should prioritize strategies that bolster liquidity, optimize operational efficiency, and manage leverage responsibly. Embracing digital transformation and fostering transparent stakeholder communication can further strengthen financial health. Future research could explore the long-term effects of these strategies and examine additional factors influencing resilience in the insurance sector

AUTHOR CONTRIBUTIONS

Conceptualization: Omonike Ope Ige-Gbadeyan.
Data curation: Omonike Ope Ige-Gbadeyan.
Formal analysis: Omonike Ope Ige-Gbadeyan.
Investigation: Omonike Ope Ige-Gbadeyan, Matthys Johannes Swanepoel.
Methodology: Omonike Ope Ige-Gbadeyan.
Project administration: Omonike Ope Ige-Gbadeyan, Matthys Johannes Swanepoel.
Resources: Omonike Ope Ige-Gbadeyan.
Supervision: Matthys Johannes Swanepoel.
Validation: Omonike Ope Ige-Gbadeyan, Matthys Johannes Swanepoel.
Writing – original draft: Omonike Ope Ige-Gbadeyan.
Writing – review & editing: Matthys Johannes Swanepoel.

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