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Inflation Risk and Financial Distress of Insurance Companies Listed at Nairobi Securities Exchange, Kenya

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Abstract

Purpose: The financial distress of insurance companies listed at the NSE had become a significant concern, as several firms faced difficulties in maintaining solvency and meeting their financial obligations. In recent years, these companies experienced declining profitability, liquidity issues, and capital adequacy challenges. The main objective of this study was to determine the effect of inflation risk on the financial distress of insurance companies listed at Nairobi Securities Exchange in Kenya. The study was anchored on expectations theory of inflation.

Methodology: The study employed a descriptive research design. For this study, the population consisted of all six insurance companies listed on the NSE as of December 2024. This study employed secondary data collection methods, gathering comprehensive annual financial and statistical information from the NSE reports, IRA publications, and the official websites of the listed insurance companies. Data were collected for 7 years between 2017 and 2023. Data were analyzed using descriptive and inferential statistics with the aid of STATA 17. The descriptive statistical tools included frequencies, percentages, means, variances, and standard deviations. Inferential statistic tools included Pearson's Product Moment correlation and the panel regression analysis.

Findings: Inflation risk with a coefficient value of 0.391171 and p value of 0.024, therefore positively and significantly affecting the financial distress of insurance companies listed at Nairobi Securities Exchange in Kenya

Unique Contribution to Theory, Practice and Policy: Insurance firms should adopt hedging strategies for foreign exchange, strengthen asset-liability matching to manage interest rate exposure, implement inflation-adjusted pricing models, and diversify portfolios to cushion against equity market shocks, while regulators should encourage prudent risk management, promote derivatives markets, and enforce strong capital adequacy frameworks to safeguard financial stability.

Keywords: *Inflation Risk, Financial Distress, Insurance Firms, Nairobi Securities Exchange, Kenya*

INTRODUCTION

Financial distress occurs when a company struggles to meet its financial obligations, potentially leading to restructuring, asset liquidation, or bankruptcy (Altman & Hotchkiss, 2020). It may stem from internal issues like poor financial planning or external factors such as inflation, rising interest rates, or economic downturns. Financial distress undermines investor confidence, lowers firm valuation, and may trigger job losses and operational disruptions (Brown, Smith & Taylor, 2022). Firms with high debt, weak liquidity, and inconsistent earnings are especially vulnerable in volatile economic conditions (Nguyen, Van Nguyen & Hoang, 2023). To mitigate these risks, companies must adopt sound financial strategies, enhance governance structures, and implement timely restructuring measures to ensure long-term stability and resilience.

Financial distress in financial institutions arises when they are unable to meet their financial obligations due to poor asset quality, liquidity mismatches, and external economic shocks (Tafri, Hamid, Meera & Omar, 2011). These institutions are highly exposed to systemic risks, including credit defaults and interest rate volatility, which can significantly impact their solvency. Within this sector, insurance firms face specific risks such as claim variability, underwriting losses, and investment shortfalls (Cummins and Weiss, 2014). Their stability relies on sound risk pricing and adequate reserve management. Listed insurance firms are even more exposed, facing capital market volatility, investor scrutiny, and regulatory demands (Pottier and Sommer, 2002), making proactive financial distress management essential for resilience and market confidence.

Inflation risk, also known as purchasing power risk, poses a significant threat to insurance companies by eroding the real value of both their assets and liabilities. For insurers, particularly those offering long-term policies such as life insurance or annuities, unexpected surges in inflation can lead to higher claim costs without a corresponding increase in premium income. This mismatch results in reduced profitability and potential financial distress. According to Bohachova (2021), inflation affects the liability side more acutely in non-life insurance due to increased replacement and repair costs, especially in health, motor, and property insurance. Furthermore, Abrahams and Zhang (2023) highlight that inflation not only raises operational and claims expenses but also diminishes the real return on fixed-income investments, which dominate insurance portfolios.

Inflation risk significantly increases the likelihood of financial distress in insurance firms by affecting both operating performance and balance sheet valuation. Rising inflation elevates claim settlement costs particularly in non-life segments such as health, motor, and property insurance while premium adjustments often lag, compressing underwriting margins (Bohachova, 2021). At the same time, inflation erodes the real returns on fixed-income investments that dominate insurers' portfolios, weakening asset growth (Abrahams & Zhang, 2023). Beyond these cash flow effects, higher inflation typically leads to higher discount rates, which alter the present value of future liabilities and create volatility in technical reserves and capital positions under market-consistent valuation frameworks. This valuation gap can generate immediate solvency pressure even before liquidity problems emerge, thereby heightening financial distress risk, especially for listed insurers operating under strict regulatory and market scrutiny (Cummins & Weiss, 2018).

Statement of the Problem

Ideally, insurance companies listed at the NSE should operate efficiently and remain free from financial distress. These firms are expected to maintain solvency, honor policyholder claims without delay, achieve consistent underwriting profits, and manage investments effectively. In a well-functioning financial system, listed insurers should exhibit stability, transparency, and resilience against both internal and external shocks. However, the increasing prevalence of financial distress among these companies raises concerns about their operational sustainability. The annual mean financial distress scores of listed insurance firms from 2018 to 2024 reveal notable fluctuations over the seven-year period. In 2018, the average financial distress stood at 1.40, this declined further in 2019 to 1.12. However, in 2020, the mean increased to 1.51 while 2021, coinciding with the economic disruptions of the COVID-19 pandemic, the mean slightly declined to 1.27. In 2022 it was 1.29, before increasing significantly in 2023 to 1.90, and peaking in 2024 at 2.41. Overall, the seven-year average financial distress score was 1.56, highlighting a moderate but increasing risk exposure over time. Over 35% of insurance firms reported negative returns, and the sector's combined ratio stood at 107.3% (IRA, 2023). This means insurers were spending KES 107.30 for every KES 100 in premiums collected, indicating unsustainable operations. The industry recorded an overall underwriting loss of KES 1.2 billion in the same year, despite a 2% growth in premiums. The persistence of this problem is justified by an alarmingly 10% of listed insurers failed to meet the minimum solvency margins set by the IRA. The situation worsened with an 8% increase in policyholder claims compared to 2019, exacerbating liquidity pressures. Additionally, firms in the life insurance segment reported a rise in actuarial liabilities, triggering emergency capital restructuring. By 2021, 12 insurance companies had been placed under the IRA watchlist due to solvency risks. Failure to address this financial distress could lead to insolvent insurers risk collapsing, potentially leaving policyholders uncompensated and undermining public confidence in the sector. Moreover, widespread distress in the insurance sector poses systemic risks to Kenya's broader financial system, especially given insurers' roles in capital markets, real estate, and long-term investment portfolios. The persistence of this problem is further justified by gaps in existing literature. This study aims to fill that gap by examining the unique inflation risks affecting these insurers

Objectives of the Study

The main objective of this study was to determine the effect of inflation risk on the financial distress of insurance companies listed at Nairobi Securities Exchange in Kenya.

Hypotheses of the Study

Ho: Inflation Risk does not have an effect on financial distress of insurance companies listed at Nairobi Securities Exchange in Kenya

Significance of the Study

This study is significant to policymakers as it provides insights into the challenges faced by insurance firms listed at the NSE due to market risk and financial distress. Policymakers can use the findings to develop regulatory frameworks that enhance the stability and resilience of the insurance sector. For the management, the insurance managers can adopt more effective risk management strategies, including hedging techniques and capital structuring decisions, to safeguard against adverse market conditions. By understanding the underlying factors contributing to inflation risk and distress, regulators at the NSE can develop strategies to improve transparency, enhance investor protection, and ensure better corporate governance

within the insurance sector. For academics, the study can serve as a foundation for further research into the risk management practices of insurers, the role of regulatory frameworks in mitigating financial distress, and the impact of market volatility on firm stability. Additionally, it provides a case study for researchers focusing on financial distress across different sectors, such as banking, manufacturing, and hospitality, broadening the scope of future research in the field of financial risk and corporate governance.

Theoretical Review

This section discusses the theory that guided the study

Expectations Theory of Inflation

The Expectations Theory of Inflation has been shaped by Friedman's adaptive expectations model (1960) and Lucas's rational expectations framework (1972). Friedman proposed that people predict future inflation based on past trends, while Lucas argued that individuals use all available economic information to form forward-looking expectations. The theory suggests that anticipated inflation influences actual outcomes, as individuals and firms adjust behavior such as demanding higher wages or raising prices in response to their expectations. Adaptive expectations rely on historical data, while rational expectations emphasize informed forecasting. Both models highlight how expectations actively shape economic behavior, making inflation partly self-fulfilling, particularly when central banks lose credibility in maintaining price stability (Kapetanios et al., 2022).

The theory assumes that economic agents form expectations either adaptively or rationally, depending on the model. It presumes that people have access to relevant information and apply it accurately when forecasting inflation. It also assumes that expectations are homogeneous across agents and remain stable over time unless there is new macroeconomic information. Additionally, rational expectations models assume markets are efficient and that policy interventions are anticipated and thus neutralized in their impact. This framework further assumes a direct and consistent link between expectations and actual inflation, without being distorted by behavioral biases, institutional weaknesses, or information asymmetry (Haider et al., 2021).

The current study employs the Expectations Theory of Inflation to explore the effect of inflation risk on the financial distress of insurance companies listed at the Nairobi Securities Exchange. Inflation erodes the real value of insurers' liabilities and assets, particularly long-term policies and fixed-income investments. When inflation expectations rise, insurers face increased claim costs, reduced investment returns, and the need for more capital reserves. The theory helps explain how expectations accurate or otherwise can influence pricing strategies, reserving practices, and capital adequacy decisions. This study examines whether mismatches between expected and actual inflation contribute to financial strain in insurance firms, offering insights into the role of inflation risk management in mitigating financial distress.

Despite its widespread use, the Expectations Theory of Inflation has notable limitations. Adaptive models tend to lag real economic developments, reacting slowly to sudden inflation shocks. Rational expectations, while theoretically elegant, assume an unrealistic level of information and processing capacity among individuals. Moreover, the theory overlooks behavioral factors such as cognitive biases, anchoring, and herding, which often distort inflation expectations. In emerging markets like Kenya, expectations may be poorly formed due to limited access to timely information, volatile macroeconomic conditions, and weak

policy credibility. Thus, while the theory provides a useful lens for understanding inflation dynamics, it must be contextualized and supplemented with behavioral and institutional considerations (Kapetanios et al., 2022; Haider et al., 2021).

Conceptual Framework

According to Mugenda and Mugenda (2003), a conceptual framework helps the reader to quickly see the proposed relationships between the variables in the study and show the same graphically. The conceptual framework explains the link between inflation risk and financial distress.

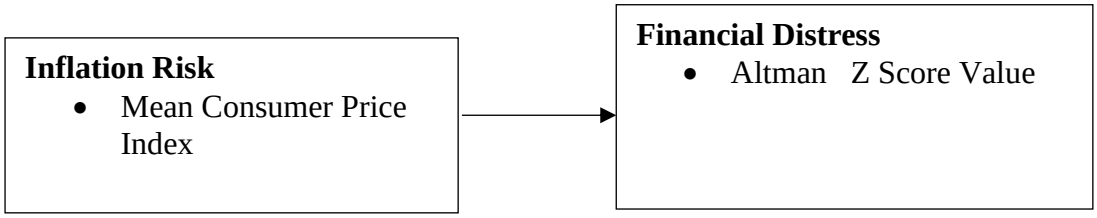

Figure 1: Conceptual Framework

Empirical Review

Yuan, Xin, and Zhang (2022) explored the relationship between inflation risk and financial distress in China's corporate sector. Using a sample of 50 firms, the study employs a panel data regression analysis from 2010 to 2020. The findings suggest that inflation increases the cost of production for firms, resulting in reduced profitability and higher instances of financial distress, especially for firms with high operating leverage. However, the study does not explore the impact of government monetary policies, such as inflation targeting, which might alleviate inflationary pressures. Additionally, it assumes a linear relationship between inflation and distress, which could be more complex and non-linear depending on firms' industry types and financial management practices.

Ofori, Kwaku, and Amponsah (2021) investigated the impact of inflation risk on financial distress in Ghana's banking sector. The study uses a quantitative research design with a sample of 15 banks between 2010 and 2019. A time-series regression model indicates that inflation risk negatively affects financial stability in banks, as higher inflation erodes the real value of loans and increases default rates. One limitation of the study is its exclusive focus on the banking sector, which may not capture the broader economic impact of inflation on other sectors like manufacturing or retail. Furthermore, the study fails to address the influence of exchange rate fluctuations, which often compound inflation risk in emerging economies.

Ajayi, Olugbenga, and Eze (2021) assessed the effect of inflation risk on the financial distress of Nigerian firms. Using data from 30 publicly listed companies over the period 2015 to 2020, the study employs a regression analysis model to test the relationship between inflation and financial distress. The findings show that inflation significantly contributes to financial distress, particularly for firms with heavy reliance on imported raw materials, whose costs increase with inflation. The study's primary limitation is its failure to explore other market risk, such as exchange rate fluctuations, which could exacerbate inflation risk. Furthermore, the study's reliance on data from large firms may not capture the experiences of SMEs, which might be more vulnerable to inflation risks.

Chen, Qian, and Zhang (2023) investigated the impact of inflation risk on the financial distress of Chinese small and medium enterprises (SMEs) using a longitudinal design with data from 200 SMEs spanning 2010 to 2020. Employing a fixed-effects regression model, the study found that inflation risk disproportionately affects SMEs compared to larger firms, largely due to their limited financial reserves and restricted access to credit. However, the research does not consider the mitigating role of government interventions, such as monetary easing or fiscal stimulus, which could reduce the negative impact of inflation. Additionally, the study overlooks sector-specific dynamics that may influence how SMEs in different industries respond to inflation risk, limiting the generalizability of its findings.

The reviewed studies reveal several important research gaps. For instance, Yuan, Xin, and Zhang (2022) and Ajayi, Olugbenga, and Eze (2021) focus on corporate firms, while Ofori, Kwaku, and Amponsah (2021) examine banks and Chen, Qian, and Zhang (2023) analyze SMEs, leaving a clear sectoral gap in industries such as insurance, which operate under different liability and reserve structures. Additionally, most studies overlook the moderating role of macroeconomic and regulatory policies—such as inflation targeting or capital requirements and fail to integrate other interacting risks like exchange rate volatility and interest rate fluctuations, particularly relevant in emerging economies. The assumption of a linear relationship between inflation and financial distress also limits understanding of possible threshold or firm-specific effects. Furthermore, the concentration of evidence in countries such as China, Ghana, and Nigeria highlights a geographical gap, suggesting the need for context-specific studies in other emerging markets to provide broader and more nuanced insights into the inflation–financial distress relationship.

METHODOLOGY

This study adopted a correlational research design to examine the relationship between inflation risk and financial distress among insurance companies listed at the Nairobi Securities Exchange in Kenya. The population consisted of all six insurance companies listed on the NSE as of December 2024. This study adopted a census inquiry, which involved a comprehensive examination of all elements constituting the target population (Kothari, 2004). Secondary data collection instruments was adopted gathering comprehensive annual financial and statistical information from the NSE reports, IRA publications, and the official websites of the listed insurance companies. Data were collected for 7 years between 2017 and 2023. The analytical approach incorporated both descriptive and inferential statistical techniques. Descriptive statistics, including frequency distributions, percentages, means, variances, and standard deviations, were used to summarize the fundamental characteristics of the dataset. For inferential analysis, the study utilized Pearson's Correlation to examine bivariate relationships, complemented by panel regression analysis to assess the simultaneous effects of multiple market risk variables on financial distress indicators with the help of STATA 15.

$$\mathbf{Y=\beta_0+ \beta X_{it} + \varepsilon}\text{……..……Equation 1}$$

Where;

Y represents the financial distress

β_0 represents the constant term

β, represents Beta coefficient of independent variable

χ represents the inflation risk

t represents time series

i represents time series

ε represents the error term

FINDINGS AND DISCUSSION

This section presents the study's results and discussion, structured into descriptive, diagnostic, and inferential analysis.

Descriptive Statistics

Descriptive statistics was carried out to establish relationship between inflation risk and financial distress. The findings are as shown in Table 1.

Table 1: Descriptive Statistics

stats	**Financial distress**	**Inflation risk**
N	42	42
min	-2.73562	0.421565
max	6.590621	2.409601
mean	1.557009	1.139158
sd	2.323964	0.632058
C.V	1.492582	0.554847

Table 1 indicated that the mean financial distress score of 1.5570 with a standard deviation of 2.3240 suggests moderate but widely varying levels of financial vulnerability across the sampled entities. The minimum value of -2.736 and maximum of 6.591 indicate that while some firms may be financially stable or even overperforming, others are experiencing serious distress. A coefficient of variation (C.V) of 1.4926 further highlights this inconsistency, implying that financial distress is unevenly distributed and volatile. The high variability may arise from inconsistent revenue streams, high debt burdens, or poor cash flow management. These findings imply a need for enhanced financial controls and early warning mechanisms within the firms to avoid insolvency and ensure long-term sustainability, especially during economic fluctuations or crisis periods.

Inflation risk, with a mean of 1.1392 and a standard deviation of 0.6321, indicates moderate exposure to rising input costs or reduced purchasing power. The range is narrow from a minimum of 0.422 to a maximum of 2.410 suggesting that inflation impacts are fairly consistent across the firms. The coefficient of variation is relatively low at 0.5548, implying less dispersion compared to other risks. Inflationary pressures may affect firms through increased operating expenses, reduced consumer demand, or pricing challenges. While the impact appears uniform, sustained inflation could erode profit margins and force firms to either absorb costs or pass them onto consumers, risking competitive disadvantage. These findings point to the need for pricing strategies and cost control mechanisms to shield firms from adverse inflation effects.

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Trend Analysis

Trend Analysis is a set of techniques used to identify, describe, and model longterm movements in data over time

Trend Analysis for Inflation

Trend analysis for inflation involved examining long-term movements in price indices and inflation rates

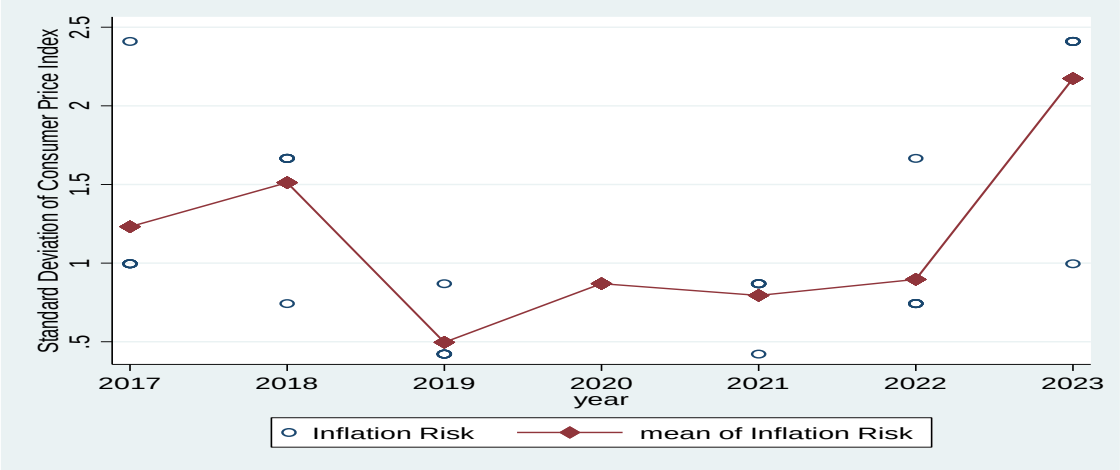

Figure 1: Trend Analysis for Inflation

The standard deviation of the Consumer Price Index, reflecting inflation risk, showed an uneven pattern from 2017 to 2023. After a stable start, it rose sharply in 2018 before falling again. The trend reversed upward in 2019, then dropped significantly during 2020's pandemic disruptions. A brief increase occurred in 2021, but by 2022 and 2023, inflation risk had settled at lower levels.

Trend Analysis for Financial Distress

Trend analysis for financial distress involved examining the long-term behavior of financial ratios to determine likelihood of insolvency.

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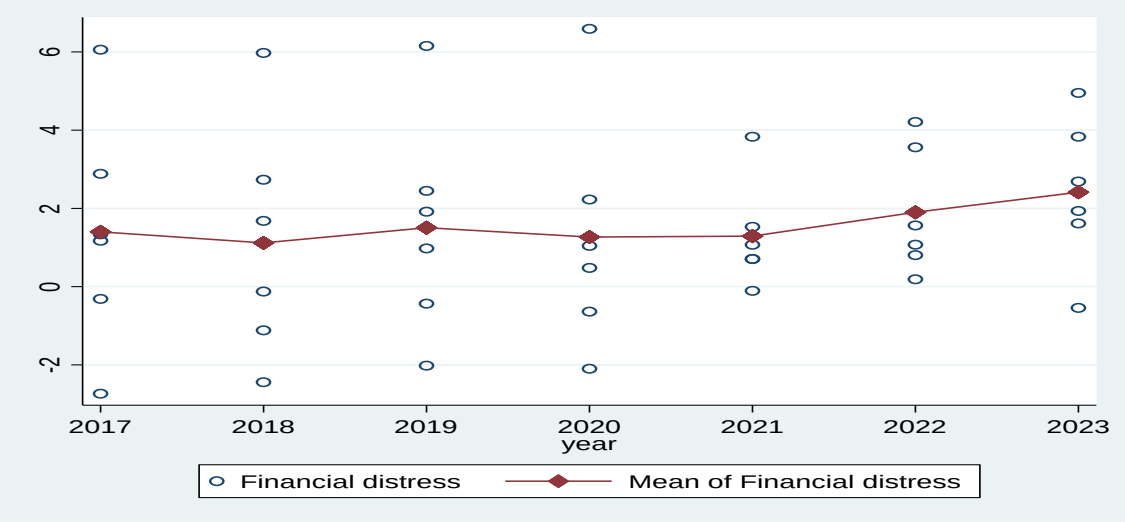

Figure 2: Trend Analysis for Financial Distress

Between 2017 and 2019, financial distress remained relatively stable with no significant fluctuations. However, in 2020, there was a sharp increase, likely driven by the economic disruptions of the COVID-19 pandemic. This year marked the peak of financial distress in the observed period. From 2021 onward, the trend reversed, showing a gradual decline as economies began recovering. By 2023, financial distress had decreased, though it may not have fully returned to pre-pandemic levels.

Inferential Statistics

Inferential statistics were employed to examine the relationship between inflation risk variables and financial distress.

Correlation Analysis

To examine the effect of inflation risk on financial distress, a correlation analysis was performed. The findings are summarized in Table 2.

Table 2: Pearson Correlation Analysis

		Financial distress	Inflation risk
	Pearson Correlation	0.4501	
	Sig. (2-tailed)	0.0028	1
Inflation risk	N	42	

The Pearson correlation analysis revealed a positive and significant relationship ($r = 0.4501$, $p < 0.01$), showing that inflationary pressures contribute to financial distress among insurers. This finding aligns with Yuan, Xin, and Zhang (2022), who found that inflation increases production costs and reduces profitability, especially for highly leveraged firms. Similarly, Ofori, Kwaku, and Amponsah (2021) observed that inflation erodes the real value of loans in Ghana's banking sector, raising default risks and weakening financial stability. These studies confirm that inflation undermines firms' financial health by reducing purchasing power and intensifying operational pressures, consistent with the observed significant correlation in the present study.

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Panel Regression Analysis

The study sought to examine the influence of inflation risk on the financial distress of insurance companies listed at the Nairobi Securities Exchange in Kenya, employing a fixed effects model, with the results presented in Table 3.

Table 3: Regression Fixed Effect of Inflation Risk on Financial Distress

Fixed-effects (within) regression	Number of obs	=	42
Group variable: BankID	Number of groups	=	6
R-sq:	Obs per group:		
within = 0.1960	Min	=	7
between = 0.8529	Avg	=	7
overall = 0.2317	Max	=	7
	F(1,35)	=	5.85
corr(u_i, Xb) = 0.2807	Prob > F	=	0.0235

Financial distress	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf.**	**Interval]**
Foreign exchange risk	0.391171	0.161741	2.42	0.024	0.057354	0.724987
_cons	0.25688	0.17568	1.46	0.157	-0.1057	0.619466

The regression results presented in Table 3 indicate that inflation risk has a positive and statistically significant effect on financial distress among insurance companies listed at the Nairobi Securities Exchange. The R-squared values further explain the model's robustness. The within R-squared of 0.196 indicates that 19.6% of the variation in financial distress within insurance firms is explained by inflation risk. The between-groups R-squared of 0.853 suggests large differences in how companies experience inflation shocks, largely due to differences in portfolio composition and exposure to long-term contracts. The overall R-squared of 0.2317 reflects moderate explanatory power. The regression model is as shown below

Y= 0.25688+0.391171X3……..…….Equation 1

The coefficient of 0.3912 with a standard error of 0.1617 yields a t-value of 2.42, significant at the 5% level (p = 0.024). This implies that an increase in inflation risk by one-unit results in a 0.391-unit rise in financial distress, holding other factors constant. The model's F-statistic of 5.85 (p = 0.0235) confirms that the relationship is statistically significant, demonstrating that inflation fluctuations materially explain variations in financial distress within the sampled companies. These findings highlight inflation as a crucial macroeconomic risk factor influencing insurance company stability. High inflation can erode investment returns, increase claim settlement costs, and destabilize reserves, thereby heightening the financial distress of insurers in volatile environments.

This is consistent with Williams, David, and Lee (2020), who revealed that inflation significantly worsened financial distress in U.S. manufacturing firms, particularly those with high debt and limited liquidity. Similarly, Ajayi, Olugbenga, and Eze (2021) reported that Nigerian firms highly dependent on imported raw materials faced greater distress due to inflation's cost-push effects. The magnitude of the explanatory power in this study mirrors such

findings, demonstrating that inflation independently drives financial vulnerability even before considering other market risk factors.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Thesection is organized into three main sections. The first section highlights a summary of the key findings arising from the study. The second section presents the conclusions drawn from these findings. The third section provides recommendations directed at policy, practice, and management for strengthening organizational systems.

Summary

Descriptive statistics indicated that inflation risk reflected moderate and fairly consistent exposure across firms. Trend analysis revealed fluctuations between 2017 and 2019, a significant drop during the 2020 pandemic, followed by mild increases and eventual stabilization by 2023. Pearson correlation analysis established a positive and significant relationship between inflation risk and financial distress, showing that inflationary pressures contribute to financial instability. Simple linear regression confirmed the influence of inflation risk on financial distress, while multiple regression analysis demonstrated that inflation had the strongest effect among the market risk variables. The third null hypothesis was rejected. These findings highlight inflation's role in raising claims costs, eroding real investment returns, and undermining pricing strategies, thereby increasing financial distress among insurers in volatile economic environments.

Conclusion

Inflation risk exhibited the strongest influence on financial distress among insurers. The findings revealed that rising price instability reduces the real value of premiums while simultaneously escalating claim settlement costs, particularly in health and motor insurance. Persistent rises in consumer prices reduce the real value of premiums while driving up claim settlement costs, particularly in areas such as healthcare and motor services. Inflation also erodes the real returns from fixed-income investments, limiting insurers' ability to maintain adequate reserves. The cumulative effect is heightened financial vulnerability, as operational costs escalate faster than revenue adjustments.

Recommendations

To address inflation risk, insurers need to adopt inflation-adjusted pricing models that ensure premiums adequately reflect anticipated inflationary trends. Dynamic reinsurance contracts and diversification into inflation-resilient investments, such as real estate and equities, could cushion against cost escalations. Cost control mechanisms and efficiency improvements in operations should also be emphasized to protect profitability. Regulators may support this through periodic review of premium adequacy against inflation indices.

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