African Journal of Emerging Issues
Peer reviewed | Double blind | Interdisciplinary

African Journal of Emerging Issues (AJOEI)
Online ISSN: 2663 - 9335
Available at: https://ajoeijournals.org

FINANCE AND ACCOUNTING

REINSURANCE TREATY OPTIMIZATION TECHNIQUES AND PERFORMANCE OF INSURANCE FIRMS IN KENYA

[1*]Symon Gatimu, [2] Bethwel Oyoo, [3]Emily Koskei, [4]Joseph Kanugi, & [5]Justice Mutua J. N., PhD

[1]School of Business and Economics, Daystar University

*symongitari@gmail.com

Publication Date: May 2024

ABSTRACT

Purpose of the Study: To evaluate the effect of reinsurance treaty optimization techniques on performance of insurance firms in Kenya.

Problem Statement: Despite the critical role of reinsurance in enhancing operational efficiency and resilience, limited research has been conducted on the specific effects of treaty optimization within Kenyan insurance firms. This gap is exacerbated by various challenges, including low interest rates, trade credit issues, and bankruptcy claims, which pose significant threats to financial stability. While existing literature explores available treaty optimization techniques, it fails to adequately address their implications for firm performance.

Methodology: Employing a descriptive-correlational research design, this study used stratified random sampling to arrive at a sample of 42 employees across ten major Kenyan insurers, and structured questionnaires were used to collect data. Analysis was conducted using SPSS software, employing descriptive statistics, ANOVA, and regression analysis to examine the relationship between treaty optimization and firm performance.

Result:

Results indicate a general readiness among organizations for treaty optimization activities, with a total score of 68% indicating agree, 19% neutral, and only 13% disagree. Treaty optimization significantly enhances various aspects of insurance firm performance, including overall performance (67.6% agree, profitability (46% agree) growth rate (58% agree). Organizational factors such as management structure (48% agree) and organizational policies (53% agree) further support successful treaty optimization efforts. The ANOVA and Regression analysis further illuminate a moderate positive correlation with (Multiple R=0.752).

Conclusion: In conclusion, this study establishes that optimized reinsurance treaties contribute to improved performance among insurance firms operating within Kenya. These findings underscore the importance of strategic treaty optimization in bolstering the resilience and effectiveness of insurance operations in the Kenyan market.

Keywords: *Insurance, reinsurance treaty, risk management, firm performance, reinsurance treaty optimization.*

INTRODUCTION

This study delves into the optimization tools of reinsurance treaties and their impact on the profitability of insurance firms in Kenya. Within the realm of business administration, managing risk, particularly in sectors like insurance, involves a blend of financial and non-financial strategies. Research by Austine (2020) underscores the significant influence of reinsurance contracts on insurance companies' financial outcomes, including profitability and risk management, as well as their competitive positioning.

Reinsurance treaty optimization serves as the independent variable in this research, encompassing various indicators directly affecting insurance company performance. These indicators include tailoring reinsurance treaties to align with insurers' risk profiles and business objectives (Muchiri & Njoka, 2021). Strategies within reinsurance treaty optimization involve segmenting risks strategically, customizing treaty structures, leveraging data analytics, and nurturing strategic alliances with reinsurers. Conversely, insurance firm performance, the dependent variable, is gauged by metrics such as market share, revenue generation, growth, and production efficiency, among others. Moreover, intervening variables like organizational factors, government regulations, and policies may influence the relationship between reinsurance treaty optimization and insurance firm performance, as identified in this study. These variables shape the operational landscape and regulatory framework within which insurers operate, thus influencing their performance outcomes.

STATEMENT OF THE PROBLEM

The optimization of reinsurance contracts stands out as a critical factor impacting the operational efficiency and resilience of insurers in Kenya, highlighting the significance of regulatory frameworks in this context (Apela, 2020). Despite existing regulations, there remains a notable dearth of substantial studies on this specific topic, indicating a significant research gap within the field of business administration. This gap is further exacerbated by the myriad challenges in insurance planning and coverage, characterized by dwindling returns and a notable surge in

bankruptcy claims reported by insurance companies. These challenges pose a severe threat to financial stability and the broader economy (Kamau, 2022).

While extant literature sheds light on the rules and regulations governing reinsurance businesses, there is a pressing need for studies addressing unexplored facets of how the performance of diverse insurance firms is influenced by dynamic market conditions and various treaty optimization strategies (Soye et al., 2022). Bridging these knowledge gaps requires rigorous investigation and research to inform strategic decision-making in both insurers' operating environments and regulatory bodies. Through such research, this study contributes theoretical insights into reinsurance treaties tailored for emerging markets, particularly Kenya. Additionally, it aims to foster sustainable growth and innovation within the insurance industry in alignment with broader economic development objectives outlined in Kenya Vision 2030 and the Sustainable Development Goals (Kiptoo et al., 2021). The study results are poised to address these knowledge gaps, fortifying insurance firms and enhancing the sustainability of the insurance sector, vital for advancing Kenya's socio-economic aspirations.

OBJECTIVES OF THE STUDY

i. To find out reinsurance treaty optimization techniques used by insurance firms in Kenya.
ii. To examine the performance of insurance firms in Kenya.
iii. To evaluate the effect of reinsurance treaty optimization techniques on performance of insurance firms in Kenya.

RESEARCH QUESTIONS

i. What are the reinsurance treaty optimization techniques used by insurance firms in Kenya?
ii. What is the performance of insurance firms in Kenya?
iii. What is the effect of reinsurance treaty optimization techniques on performance of insurance firms in Kenya?

THEORETICAL FRAMEWORK

Demand Theory

Originating in the late 19th century, Demand Theory, pioneered by Bakker and De Vries (2021), scrutinizes consumer behavior and market demand dynamics. In this study, demand analysis was instrumental in comprehending consumer trends and overarching market characteristics, ultimately delineating insurance product demand and reinsurance service requisites. Key concepts such as utility, price elasticity, and consumer surplus elucidate the reasons behind the surge in

insurance demand and contribute to decision-making in reinsurance optimization (Bakker et al., 2023). The proposed framework evaluates two pivotal facets: the evolving market landscape and disruptions in demand for both insurance companies and insurance firms. Grounded in Demand Theory, this study posits that the dependent variable (insurance company performance) is intrinsically linked to the condition of market dynamics (the independent variable). Research endeavors, like that of Soye et al. (2022), dissect the ramifications of factors shaping insurance demand and the repercussions of market fluctuations on said demand. Critics contend that imperfections arise from presuming rational individual behavior and perfect information availability. Nonetheless, Demand Theory precisely examines consumer actions, albeit without delving into supply-side dynamics or institutional factors embedded in insurance markets.

Transaction Cost Economics (TCE)

Transaction Cost Economics (TCE), introduced by Ketokivi and Mahoney (2020), delineates the various costs associated with economic transactions and governance mechanisms. This study approaches insurance and reinsurance structures by scrutinizing transactional costs and governance challenges. TCE's tenets, such as transaction specificity, uncertainty, and opportunism, expound upon the intricacies of contractual arrangements and other reinsurance relationships (Onyango, 2021). The framework provides a conceptual framework for analyzing transaction costs that impact reinsurance arrangement decisions and insurance company performance. TCE serves as a critical determinant influencing joint organizational strategies and reinsurance procedures aimed at achieving specific objectives. Scholarly inquiries, like that of Thuku and Muchemi (2021), posit that TCE's application extends to regulating insurance market structures and shaping the regulatory framework. Integrating TCE with Demand Theory represents a crucial step towards comprehensively understanding any insurance market, as this approach amalgamates demand-side principles with supply-side trends (Nagle et al., 2024).

EMPIRICAL REVIEW

Quantitative research design was employed in Korjenevskaya's (2022) study on Efficient Reinsurance Renewal Structures for Sufficient Performance. The survey targeted a population of 200 insurance companies, utilizing structured questionnaires and multi-regression analysis for data analysis. The study uncovered positive correlations between customized reinsurance provisions and company performance ($p < 0.05$; $R = 0.62$), emphasizing the need for tailored treaty structures

aligned with various risks and objectives. Pallaria (2023) investigated Risk Segmentation Techniques and Their Effects on Reinsurance Optimization, utilizing a mixed-methods research approach involving qualitative and quantitative methods. The study, encompassing 150 insurance firms, employed semi-structured interviews and financial reports for data collection, subsequently employing thematic analysis and panel data regression for data analysis. The findings underscored a strong positive association between strategic risk segmentation and firm performance ($p<0.01$, $R = 0.71$), highlighting the imperative of customized risk dimensions. Gavagan et al. (2022) conducted a study on Data Analytics in Reinsurance Treaty Optimization, utilizing semi-structured interviews with 25 insurance industry personnel and financial report analysis. The study showcased that data analytics enhance risk assessment accuracy and optimize reinsurance treaty structures, thereby enhancing firm performance. However, a methodological gap existed as the study did not elucidate how leveraging data analytics affects firm performance. Debebe (2023) examined Strategic Reinsurer Partnerships and Insurance Firm Performance, employing a quantitative study method (cross-sectional research design) with a sample of 500 insurance companies from 20 countries. Structured surveys and financial reports were utilized for data collection, interpreted using the structural equation modeling method. The results emphasized a substantial positive association between strategic reinsurer tie-ups and business outcomes at a statistically significant level of $p < 0.01$, with $R = 0.78$ indicating the significant role of collaborative relations in optimizing reinsurance contracts. Osman and Samontaray (2022) investigated the effect of corporate governance on firm performance in Taiwan's Non-life insurance industry, employing a panel data regression approach over a sample of 19 insurers spanning the years 2004 – 2019. The study showcased that governance drivers such as board independence, ownership concentration, and institutional ownership positively influence firm performance, as indicated by return on assets. Notably, corporate governance was positively correlated ($p<0.01$) with firm performance.

Jin et al. (2021) employing panel data regression from 2005-2012, delved into examining the relationship between corporate governance and the performance of Chinese-listed companies. Internal governance mechanisms such as ownership concentration and board independence positively affected performance, measured through return on assets and Tobin's Q, respectively. Auditor choice and analyst coverage also enhanced firm performance, representing external factors. Importantly, the regulatory environment moderated the governance-performance nexus.

For instance, with a $p<0.01$ level of significance, it was established that board independence significantly affects ROA. With $p<0.05$ for Tobin's Q, the study found that auditor choice has a positive impact. The fixed effects models further indicated relatively high R-squared values within the range of 0.415 to 0.663.

CONCEPTUAL FRAMEWORK

Independent variable **Dependent variable**

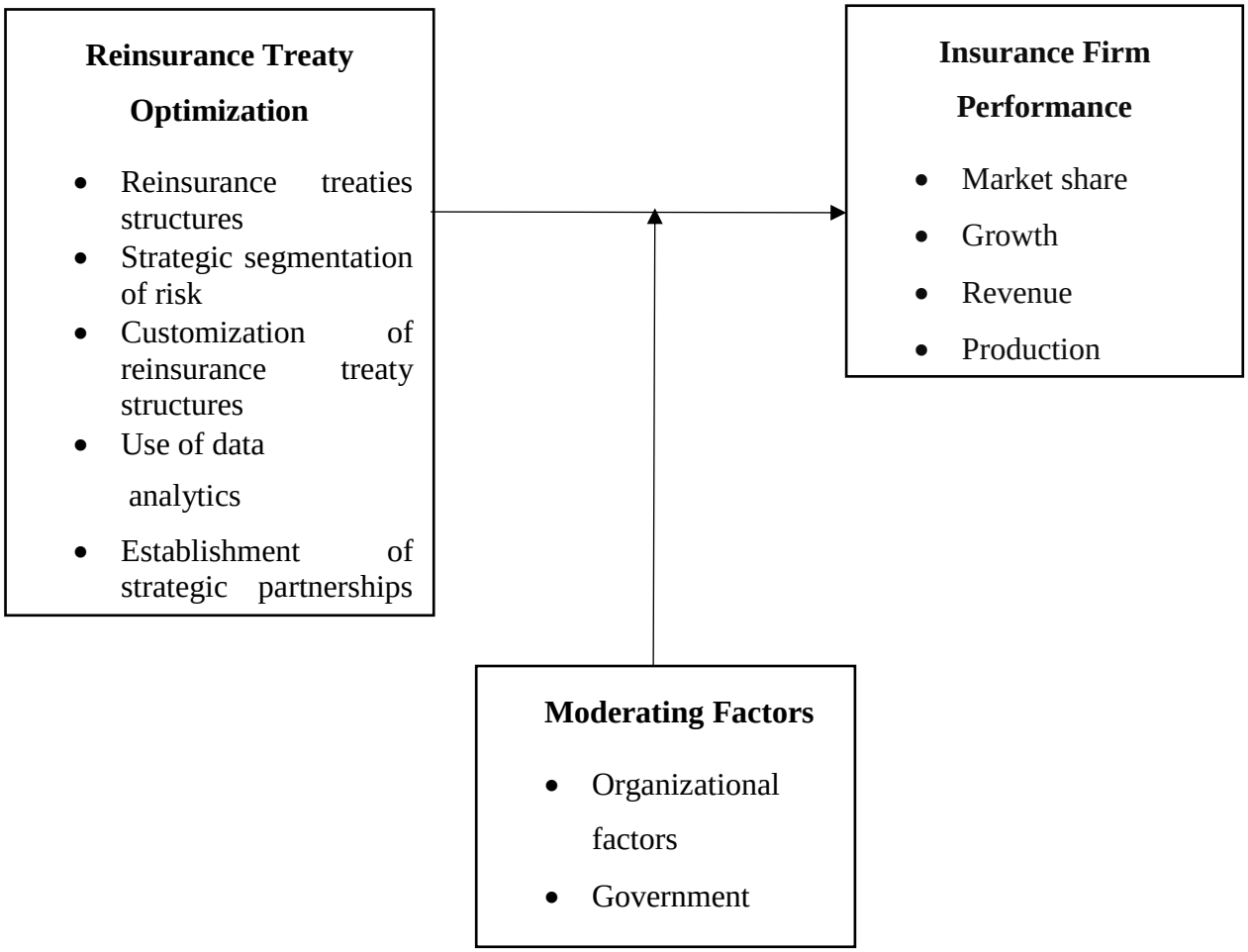

Figure 1: Conceptual framework

Source: (Gatimu et al., 2024)

RESEARCH METHODOLOGY

This study employed a descriptive research design, aiming to elucidate the characteristics of the event or population under investigation (Kiptoo et al., 2021). This approach is instrumental in

analyzing relationship factors, identifying prevailing conditions, and discerning trends. Adopting a descriptive technique, the research broadly explores reinsurance contract optimization techniques pertinent to enhancing the performance of insurance firms in Kenya.

Stratified random sampling was employed as the selection method for the study. The study population encompassed all employees from ten major insurance companies in Kenya. The sample consisted of 42 employees, comprising 7 from managerial positions and 35 from non-managerial roles. This sampling method ensures proportional representation from each stratum (management and non-management), facilitating the generalization of findings (Nguyen et al., 2021). Random sampling was then employed to select participants from each stratum.

Surveys served as the primary method of data collection, utilizing structured questionnaires to elicit genuine responses from respondents. Surveys were chosen for their efficiency in swiftly gathering data from a substantial sample size, facilitating representative polling across sub-population groups and local communities (Fife-Schaw, 2020). Moreover, surveys enable standardized data collection, ensuring consistency in participants' responses and providing researchers with quantifiable data on the variables under scrutiny.

Data collected from the surveys were analyzed using SPSS software (Statistical Package for Social Science). This analytical tool offers various features and functionalities, including data manipulation, transformation, and statistical analysis (Sadriddinovich, 2023). Descriptive statistics, such as frequencies, percentages, means, and standard deviations, were computed to depict and describe variable characteristics for further exploration. Furthermore, inferential statistical methods, such as regression analysis, were employed to establish relationships between variables and articulate hypotheses (Anderson et al., 2020). The analyzed data were presented in tabular format.

RESULTS AND DISCUSSIONS

Reinsurance Treaty Optimization

The findings indicate generally positive perceptions regarding the company's reinsurance treaty optimization practices and their impact on firm performance. The strategic segmentation of risks garnered agreement from 47% of respondents, while 51% acknowledged the importance of data analytics, with stakeholder collaboration receiving the highest affirmation at 56%. However, there

are opportunities for enhancing training (46% agreement) and technological infrastructure (43% agreement) for treaty optimization. Tailoring treaties to specific risks scored relatively lower at 35% agreement, followed by effective feedback management at 39% agreement, primarily due to higher neutral scores. Nevertheless, organizations display a general inclination towards reinsurance treaty optimization activities, with a total score of 68% agreement, 19% neutral, and only 13% disagreement.

Insurance Firm Performance

A significant proportion (67.6%) agreed that insurance performance was enhanced by treaty optimization, with 20% neutral and only 12.4% in disagreement. Specifically, 46% affirmed that reinsurance treaties positively impacted profitability, while 58% agreed on its positive effect on growth rate, and 50% on increased production efficiency. Additionally, 36% and 38% of respondents agreed and strongly agreed, respectively, that treaty optimization enabled organizations to surpass industry averages and increase market share.

Organizational Factors

Management structure (48% agreement) and organizational policies (53% agreement) were identified as facilitators of successful treaty optimization. Similarly, government regulations were viewed positively, with 55% agreement. A significant majority (81.8%) considered organizational factors as regulatory influences on reinsurance treaty optimization techniques, with only 12.7% expressing neutrality and 5.2% disagreement.

Descriptive analysis

Table 1: Descriptive analysis

	Reinsurance Treaty Optimization	Insurance Firm Performance	Organizational Factors
Mean	3.785714286	2.12962963	1.354497354
Standard Error	0.053483934	0.105583799	0.101719783
Median	4	2	0
Mode	4	0	0
Standard Deviation	1.039846521	2.052783675	1.977658607
Sample Variance	1.081280788	4.213920817	3.911133566
Kurtosis	-0.035299388	-1.707789209	-1.087864899
Skewness	-0.728636137	0.120339546	0.869138712
Range	4	5	5
Minimum	1	0	0
Maximum	5	5	5
Sum	1431	805	512
Count	378	378	378

In terms of mean scores, reinsurance treaty optimization emerges with the highest mean score, approximately 3.79, followed by insurance firm performance at approximately 2.13, and organizational factors at approximately 1.35. Reinsurance treaty optimization also exhibits the least variability among the groups, with its lowest standard deviation of 1.04. In contrast, organizational performance displays the highest variability, with a standard deviation of 2.05, while organizational factors fall in between with a standard deviation of 1.98. It is noteworthy that the mode for both insurance firm performance and organizational factors is 0, indicating a prevalence of lower scores within these categories. Conversely, the median is 4 under insurance treaty optimization, 2 for firm performance, and zero for organizational factors.

Regression Analysis

Table 2: Regression analysis

Regression Statistics	
Multiple R	0.752689658
R Square	0.566541722
Adjusted R Square	0.564229944
Standard Error	0.686432655
Observations	378

Anova

	df	SS	MS	F	Significance F
Regression	2	230.9466861	115.473343	245.0676	8.4648E-69
Residual	375	176.696171	0.47118979		
Total	377	407.6428571			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	4.438002758	0.051844126	85.60280855	3.2E-248	4.33606113	4.539944339
Dependent variable	-0.082034736	0.018950613	-4.3288699	1.93E-05	-0.1192975	-0.044772
Moderating factors	-0.352591952	0.019670487	-17.924922	2.44E-52	-0.3912702	-0.3139137

The regression analysis reveals a moderate positive correlation (Multiple R = 0.752), explaining approximately 56.7% of the variance in the dependent variable (R Square = 0.567). The model demonstrates statistical significance (F = 245), with both independent (coef = 4.43) and dependent variables (coef = -0.08, -0.35) exhibiting significant impacts. Furthermore, the positive p values denote a significant positive relationship between the variables, suggesting a predictive association wherein the independent variable positively influences the dependent variable.

CONCLUSION

This study aimed to scrutinize the impact of optimizing reinsurance treaties on the profitability of insurance companies in Kenya. It sought to identify optimization tactics, evaluate company performance, and scrutinize the correlation between treaty optimization and performance. Results

revealed that all insurance firms in Kenya implement treaty optimization measures, including strategic risk assessment, data analytics employment, public collaborations, training initiatives, and technological advancements. However, opportunities for improvement exist, particularly in tailoring treaties to the risk profile of diverse businesses and establishing effective feedback mechanisms. Overall, the study evidenced a positive perception that reinsurance treaty optimization enhances insurance performance across metrics such as profitability, growth rates, production efficiency, industry benchmark outpacing, and market share expansion. Furthermore, approximately two-thirds of respondents expressed belief in the overall performance enhancement stemming from treaty optimization. Additionally, organizational factors such as management structure, company policies, and government regulations were identified as moderating influences on the successful implementation of optimization strategies.

This study addressed several gaps in the literature concerning reinsurance treaty optimization and insurance firm performance. It provided a comprehensive theoretical framework amalgamating demand theory and transaction costs economics theory, capturing market dynamics, governance issues, and performance indicators. The use of mixed research strategies, combining surveys and literature analysis, complemented the quantitative data analysis approach, offering localized insights specific to the Kenyan insurance market. Furthermore, the study underscored the significance of data analytics, previously overlooked, in driving improved firm performance when applied within Kenyan insurers' treaty optimization practices.

RECOMMENDATIONS

To align with Kenya's Vision 2030 and the Sustainable Development Goals (SDGs), the insurance sector must prioritize actions fostering economic growth, innovation, and sustainability. Investments in training programs by insurance companies would not only enhance employees' skills but also promote sustainability and economic growth, contributing to SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation, and Infrastructure). Regulatory frameworks should support innovation while maintaining compliance with international standards, enabling cross-sectoral collaboration to achieve SDG 17 (Partnerships for the Goals). Additionally, the adoption of technology and big data analytics should be encouraged to enhance inclusive industrialization as per SDG 9. Collaboration between reinsurance companies and insurers to customize treaty structures can bolster competitiveness and enhance the economy's resilience to

climate risks, supporting SDG 13 (Climate Action). Moreover, promoting ethical practices within industries would align with Kenya's development plan and contribute to global sustainability objectives outlined in the SDGs.

REFERENCES

Anderson, D. R., Williams, T. A., & Cochran, J. J. (2020). *Statistics for business & economics*. Cengage Learning. https://thuvienso.hoasen.edu.vn/handle/123456789/11423

Apela, G. (2020). *Effect Of Reinsurance Practices On Profitability Of General Insurance Companies In Kenya* [PhD Thesis, University of Nairobi]. http://erepository.uonbi.ac.ke/handle/11295/154007

Austine, O. O. (2020). Competitive Strategies and Performance of Insurance Companies in Kenya. *Unpublished Doctoral Thesis, Kenyatta University*. https://ir-library.ku.ac.ke/bitstream/handle/123456789/21699/Competitive%20Strategies%20and%20Performance%20of%20Insurance.....pdf?sequence=1

Bakker, A. B., & De Vries, J. D. (2021). Job Demands–Resources theory and self-regulation: New explanations and remedies for job burnout. *Anxiety, Stress, & Coping*, *34*(1), 1–21. https://doi.org/10.1080/10615806.2020.1797695

Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. (2023). Job Demands–Resources Theory: Ten Years Later. *Annual Review of Organizational Psychology and Organizational Behavior*, *10*(1), 25–53. https://doi.org/10.1146/annurev-orgpsych-120920-053933

Debebe, Y. (2023). *The Effect of Reinsurance Mechanism for the Profitability Performance of Private Insurance Company in Ethiopia* [PhD Thesis, St. Mary's University]. http://repository.smuc.edu.et/handle/123456789/7713

Fife-Schaw, C. (2020). Questionnaire design. *Research Methods in Psychology*, 343–374.

Gavagan, J., Hu, L., Lee, G. Y., Liu, H., & Weixel, A. (2022). Optimal reinsurance with model uncertainty and Stackelberg game. *Scandinavian Actuarial Journal*, *2022*(1), 29–48. https://doi.org/10.1080/03461238.2021.1925735

Jin, S., Gao, Y., & Xiao, S. (2021). Corporate governance structure and performance in the tourism industry in the COVID-19 pandemic: An empirical study of chinese listed companies in China. *Sustainability*, *13*(21), 11722.

Kamau, A. M. (2022). *Firm Characteristics and Financial Performance of Insurance Firms in Kenya* [PhD Thesis, JKUAT-COHRED]. http://ir.jkuat.ac.ke/handle/123456789/5985

Ketokivi, M., & Mahoney, J. T. (2020). Transaction Cost Economics As a Theory of Supply Chain Efficiency. *Production and Operations Management*, *29*(4), 1011–1031. https://doi.org/10.1111/poms.13148

Kiptoo, I. K., Kariuki, S. N., & Ocharo, K. N. (2021). Risk management and financial performance of insurance firms in Kenya. *Cogent Business & Management*, *8*(1), 1997246. https://doi.org/10.1080/23311975.2021.1997246

Korjenevskaya, G. (2022). Reinsurance in Belarus: Market analysis and new challenges in modern conditions. *Przedsiębiorstwo We Współczesnej Gospodarce–Teoria i Praktyka*, *35*(2), 23–40.

Muchiri, E. W., & Njoka, C. (2021). Corporate Governance and Financial Performance of Reinsurance Corporations in Kenya. *The International Journal of Business & Management*, *9*(3). https://ir-library.ku.ac.ke/bitstream/handle/123456789/23480/Corporate%20Governance%20and%20.....pdf?sequence=1

Nagle, F., Seamans, R., & Tadelis, S. (2024). Transaction cost economics in the digital economy: A research agenda. *Strategic Organization*, 14761270241228674. https://doi.org/10.1177/14761270241228674

Nguyen, T. D., Shih, M.-H., Srivastava, D., Tirthapura, S., & Xu, B. (2021). Stratified random sampling from streaming and stored data. *Distributed and Parallel Databases*, *39*(3), 665–710. https://doi.org/10.1007/s10619-020-07315-w

Onyango, A. (2021). *Risk Management Practices and Performance of Insurance Companies in Kenya* [PhD Thesis, University of Nairobi]. http://erepository.uonbi.ac.ke/handle/11295/160388

Osman, M. A. M., & Samontaray, D. P. (2022). Corporate governance and performance of insurance companies in the Saudi market. *The Journal of Asian Finance, Economics and Business*, *9*(4), 213–228.

Pallaria, A. (2023). *Risk-mitigation techniques: From (re-) insurance to alternative risk transfer*. https://iris.uniroma1.it/handle/11573/1670475

Sadriddinovich, J. T. (2023). Capabilities of SPSS Software in High Volume Data Processing Testing. *American Journal of Public Diplomacy and International Studies (2993-2157)*, *1*(9), 82–86.

Soye, Y. A., Olumide, R. O., & Adeyemo, D. L. (2022). Reinsurance: A Risk Management Instrument for Insurance Companies' Profitability (A Case of Non-Life Insurance in Nigeria). *Economic Insights-Trends & Challenges*, *2*. https://upg-bulletin-se.ro/wp-content/uploads/2022/09/2.Soye_Olumide_Adeyemo.pdf

Thuku, C. W., & Muchemi, A. (2021). Risk transfer strategy and the performance of insurance companies in Nyeri County, Kenya. *International Journal of Innovative Research and Advanced Studies (IJIRAS)*, *8*(2), 28–33.