

The Role of Risk Management in Enhancing Insurance Company Profitability: Evidence from Algeria's National Insurance Company (SAA), 2022–2024

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Abstract

Purpose: This study investigates the role of risk management in enhancing the profitability of insurance companies through an analytical case study of Algeria's National Insurance Company (SAA) during the 2022–2024 period. It specifically examines how underwriting, retention, and financial leverage risks affect the company's financial performance.

Design/methodology/approach: The study employs a descriptive-analytical approach based on SAA's financial and operational data for 2022–2024. Risk management performance is assessed using the loss ratio, retention ratio, and debt ratio, while profitability is evaluated through return on assets (ROA), return on equity (ROE), and net investment margin. The analysis examines changes in these indicators and the relationships between the company's risk exposure, investment performance, and profitability.

Findings: The findings show that an increasing loss ratio adversely affects both ROA and ROE by intensifying claims-related pressures and reducing underwriting profitability. Effective investment management, however, contributes to maintaining the company's investment margin despite deteriorating technical results. A higher retention ratio improves profitability only when supported by sound underwriting, actuarially appropriate pricing, and effective claims management. The modest decline in the debt ratio has a comparatively limited effect on profitability, indicating that technical insurance risks exert a stronger influence on SAA's financial performance than changes in financial leverage.

Research limitations/implications: The study is limited to a single insurance company and a three-year analytical period. Its findings should therefore be interpreted within SAA's organizational and regulatory context and may not be directly generalizable to the entire Algerian insurance market. Future research could employ longer time horizons, include multiple insurance companies, and apply econometric methods to test the relationships between risk-management indicators and profitability.

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Practical implications: Insurance companies should strengthen underwriting standards, adopt risk-based pricing, improve claims assessment and settlement procedures, and enhance the efficiency of their investment portfolios. Retention decisions should be aligned with available capital, reinsurance arrangements, and the company's capacity to absorb losses. An integrated approach to technical and financial risk management can improve the balance between risk and return while supporting profitability and long-term financial stability.

Originality/value: This study provides recent company-level evidence on the relationship between risk management and profitability in the Algerian insurance sector. By jointly examining technical risk, retention policy, financial leverage, and investment performance, it offers an integrated analytical perspective on the principal mechanisms through which risk-management decisions influence insurer profitability.

Keywords: Algerian insurance sector; insurance companies; loss ratio; profitability; retention ratio; return on assets; return on equity; risk management; SAA.

JEL Classification: G22; G32; M41.

Introduction

Risk management has become a strategic priority for insurance companies due to the diverse risks they face, including underwriting, claims, financial, liquidity, and solvency risks. Effective risk management enables insurers to identify, assess, and mitigate these risks through sound underwriting, appropriate pricing, reinsurance, adequate technical reserves, investment diversification, and prudent financial management. These practices enhance financial stability, reduce unexpected losses, and improve key profitability indicators such as return on assets (ROA) and return on equity (ROE). In the Algerian context, the performance of SAA Insurance Algeria demonstrates how efficient risk management contributes to stronger technical and financial results by controlling losses, optimizing investment returns, and supporting sustainable profitability. Thus, long-term success in the insurance sector depends not only on business growth but also on the effective management of technical and financial risks.

Research Problem:

To what extent does risk management contribute to improving the profitability of SAA Insurance Company, and what is the impact of each risk on the company's financial performance during the study period?

Sub-Questions:

1. How does the loss ratio affect the profitability indicators ROA, ROE, and NIM for SAA Insurance Company?
2. How does the retention ratio affect the stability of the technical surplus and the company's profitability results during the study period?
3. What role does the leverage ratio play in enhancing or diminishing profitability indicators, particularly ROE and NIM?
4. To what extent does integrated risk management (loss ratio, retention, leverage) contribute to improving SAA Insurance Company's overall financial performance?

Hypotheses:

1. There is an inverse relationship between the loss ratio and ROA, ROE, and NIM, such that as the loss ratio increases, the profitability indicators decrease.
2. An increase in the retention ratio leads to greater volatility in the technical surplus and a decrease in the return on equity (ROE), unless risks are managed efficiently.
3. A high debt ratio enhances ROE when profits are strong, but it increases financial risk when net profit declines.
4. Implementing integrated risk management (loss limiting, retention adjustments, and debt control) contributes to improving profitability indicators such as ROA, ROE, and NIM, and reduces the volatility of financial results.

Importance of the study

This study is significant due to the strategic role of risk management in enhancing the profitability and sustainability of insurance companies, particularly in an operating environment characterized by high levels of uncertainty and multiple sources of technical and financial risks. SAA Insurance Algeria faces increasing challenges related to volatile insurance claims, investment risks, and economic fluctuations, making the implementation of effective risk management practices essential for maintaining financial stability and improving performance. This study also aims to highlight the impact of efficient risk management on maximizing technical surplus and improving investment returns, and its reflection on key profitability indicators such as return on assets (ROA), return on equity (ROE), and net profit margin (NIM). From a practical standpoint, the study provides an analytical framework for evaluating the effectiveness of the company's adopted technical and financial policies, thereby supporting decision-makers in developing risk management strategies and enhancing the company's financial efficiency and competitiveness.

Study Objectives

The study aims to achieve several key integrated objectives:

1. To analyze the impact of risk management on profitability indicators at SAA Insurance Company Algeria, focusing on ROA, ROE, and NIM;
2. To assess the relationship between technical, financial, and liquidity risks and the company's financial performance, by examining the loss ratio, retention ratio, and debt ratio;
3. To determine the effectiveness of the technical and financial policies implemented in controlling losses and stabilizing the technical surplus;
4. To propose practical recommendations for enhancing sustainable profitability by improving risk management across its various dimensions;
5. To highlight the role of risk management as a strategic tool to ensure the company's ability to meet its future obligations and achieve a balance between financial growth and potential risks.

First: The Concept of Risk Management in Insurance Companies

Risk management is one of the fundamental pillars underpinning the insurance industry, as it provides the systematic framework through which insurance companies are able to deal with the uncertainty inherent in the insurance business; Insurance is, at its core, based on the pooling and distribution of risks; however, (Magee, Schilling, & Sheedy, 2019, pp. 381–413) this pooling itself may become a source of threat if it is not managed in a scientific and organised manner, which makes risk management an indispensable strategic function within insurance companies.

Rejda and McNamara (2020) define risk management in insurance companies as: “an integrated system designed to systematically address all types of risk faced by an insurance company, thereby ensuring a balance between risk and return”. This definition emphasises that the primary objective of risk management is not the complete elimination of risk, but rather the achievement of an acceptable level of risk commensurate with the company’s risk-bearing capacity, whilst at the same time generating an appropriate return.(Rejda & McNamara, 2021, pp. 3-8)

Second: The Importance of Risk Management in Insurance Companies

Risk management is of paramount importance to insurance companies due to the inherent nature of the insurance business, which is fundamentally based on uncertainty, multiple probabilities, and long-term obligations. Insurance companies do not sell a tangible commodity; rather, they are obligated to compensate for future losses whose occurrence and value are uncertain. This makes them vulnerable to a complex set of risks that may threaten their financial stability and continuity. Therefore, risk management is a strategic tool aimed at protecting the company, maximizing its value, and achieving its financial objectives. The importance of risk management in insurance companies can be highlighted through the following points:

1. Enhancing the Financial Stability of Insurance Companies

Risk management directly contributes to enhancing the financial stability of insurance companies by mitigating unexpected losses resulting from underwriting errors, financial market fluctuations, or extraordinary disasters. Early identification and accurate measurement of risks allow the company to establish sufficient technical and financial reserves to cover claims, thus reducing the likelihood of experiencing sudden financial shocks.(Alhassan, 2018, pp. 805–813)

2. Enhancing Financial Solvency and Regulatory Compliance

Financial solvency is a key indicator used by regulatory bodies to assess the soundness of insurance companies. Risk management plays a pivotal role in maintaining adequate solvency levels by controlling the size and type of risks a company assumes in proportion to its capital and capacity.(Eling & Pankoke, 2016, pp. 249–284)

3. Supporting Decision-Making within Insurance Companies

Risk management is a primary source of strategic information upon which senior management relies in making decisions.(Hoyt & Liebenberg, 2011, pp. 795–822) Through risk measurement systems and scenario analysis, management can assess the impact of various decisions on the company's financial position, whether related to underwriting policies, setting insurance premiums, selecting reinsurance programs, or directing investments.(Baxter, Bedard, Hoitash, & Yezege, 2013, pp. 1264–1295)

4. Balancing Risk and Profitability

Risk management in insurance companies does not aim to completely eliminate risk, as risk is a fundamental source of profitability.(Hoyt & Liebenberg, 2011, p. 796) Rather, it seeks to achieve a rational balance between acceptable risk levels and expected returns. The more efficiently risks are controlled, the more a company can improve its profitability without jeopardizing its financial position. (Eckles, Hoyt, & Miller, 2014, pp. 247–261)

5. Enhancing the confidence of stakeholders

Trust is a fundamental element in the insurance industry, as policyholders depend on the company's ability to meet its obligations in the future.(Hoyt & Liebenberg, 2011, p. 798) Good risk management contributes to enhancing the confidence of various stakeholders,(Baxter, Bedard, Hoitash, & Yezege, 2013, p. 1269) such as policyholders, investors, reinsurance companies, and regulatory authorities.(Eckles, Hoyt, & Miller, 2014, p. 253)

Third: Financial Risk Indicators

Among the most important indicators used to measure risk in insurance companies are the following:

Loss Ratio:

This is a technical indicator used by insurance companies to measure the level of compensation compared to premiums earned during a specific period. It is considered one of the most important indicators reflecting the efficiency of underwriting management and risk pricing. This ratio represents the percentage of compensation paid and technical provisions for claims that are actually realized in total insurance revenues,(Alhassan & Biekpe, 2016, p. 20) thus allowing for an assessment of the company's ability to achieve a technical surplus from its core business.(Cummins & Weiss, 2014, p. 495)

It is calculated according to the following formula:

$$LossRatio = \frac{Compensation}{Earned\ premiums} \times 100$$

A lower loss ratio indicates better risk control and appropriate risk pricing, while a higher ratio suggests increased technical pressures and may negatively impact profitability if not offset by a similar increase in premiums or improved risk management.

Retention Ratio:

This is a technical indicator used by insurance companies to measure the proportion of risks the company retains internally compared to total underwritten risks. It reflects the company's reliance on its own resources rather than transferring some risks to reinsurers. This ratio reflects the company's risk allocation policy between internal retention and reinsurance and is an important tool for assessing its direct exposure to technical risks.(Lee, 2014, p. 685)

It is calculated according to the following formula.

$$Retention = \frac{Net\ installments}{Gross\ installments} \times 100$$

Note: Net premiums represent the premiums remaining after deducting reinsurers' share, while gross premiums represent the total premiums written before reinsurance.

A high retention ratio indicates that the company bears a larger share of the risk, which may enhance profitability if claims stabilize, but it also increases the level of risk. Conversely, a low retention ratio indicates greater reliance on reinsurance to reduce exposure, which enhances financial security but may reduce potential profit margins.

Leverage Ratio:

This is a financial indicator used to measure the degree to which a company relies on liabilities to finance its assets. It represents the percentage of assets financed by debt and various liabilities compared to total assets.(Lee, 2014, p. 686) This indicator is a key tool for assessing the financial structure and level of financial risk, especially for insurance companies that rely heavily on technical provisions and obligations to policyholders.(Adams & Buckle, 2003, p. 137)

It is calculated using the following formula:

$$Leverage = \frac{Total\ Liabilities}{Total\ Assets} \times 100$$

A high debt ratio indicates greater reliance on external financing sources, increasing financial risks, while a low ratio reflects a strong capital base and greater financial stability. However, it may reduce the impact of leverage on returns if profits are high.

Fourth: The Concept of Profitability in Insurance Companies

Profitability is one of the most important goals pursued by insurance companies, as it is a key indicator of their economic efficiency and their ability to continue and grow in a high-risk and competitive environment. Profitability not only reflects a company's ability to generate a financial surplus but also its success in managing risks, allocating resources, and achieving a balance between return and risk.(Adams & Buckle, 2003, p. 137)

Profitability in insurance companies refers to a company's ability to generate profits from its insurance and investment activities after covering all claims, technical, administrative, and financial expenses. The profitability of insurance companies is unique compared to other institutions, (Burca & Batrîncă, 2014, p. 302) as it depends on two main sources:

- The technical result resulting from insurance underwriting activity;
- The financial result resulting from investing available reserves and funds.

The profitability of insurance companies is affected by several factors, most notably: the quality of the underwriting policy, the accuracy of premium pricing, the efficiency of claims management, the effectiveness of reinsurance, in addition to good investment management. Therefore, profitability is a direct reflection of the level of efficiency of risk management within the company.

Fifth: Profitability Measurement Indicators in Insurance Companies

Insurance companies rely on a set of financial and technical indicators to measure profitability and evaluate their performance. This is due to the unique nature of their business, which involves a time lag between revenues and expenses, uncertainty in results, and multiple income sources. These indicators are essential analytical tools that enable management, regulatory bodies, and investors to assess the efficiency of resource utilization, the effectiveness of risk management, and the company's ability to achieve financial sustainability. Among the most important profitability measurement indicators in insurance companies are the following:

1. Return on Assets (ROA)

The return on assets (ROA) is one of the most important financial indicators used to evaluate the profitability of insurance companies. It measures the company's ability to utilize its total available assets to generate profits, regardless of the sources of funding for these assets. (Burca & Batrîncă, 2014, p. 305) It is calculated according to the following formula:

$$ROA = \frac{\text{Net Profit}}{\text{Total Assets}}$$

This indicator reflects management's efficiency in allocating economic resources, whether in insurance or investment activities. In insurance companies, assets are of paramount importance as they represent an investment vehicle for funds collected from premiums and technical reserves. The higher the return on assets (ROA), the more it indicates:

- Sound asset management;
- Greater ability to generate profits from available resources;
- Higher efficiency in combining insurance and investment activities.

However, a low ROA may reflect weak investment returns, high claims and expenses, or poor risk management.

2. Return on Equity (ROE)

The return on equity (ROE) measures an insurance company's ability to generate returns for its shareholders. It is considered one of the most important indicators from an investor's perspective.(Malik, 2011, p. 318) and is calculated as follows:

$$ROE = \frac{\text{Net Profit}}{\text{Equity}}$$

This indicator demonstrates management's effectiveness in maximizing shareholder wealth and reflects the degree of risk the company assumes. A high return on equity (ROE) may result from high operational efficiency or extensive use of leverage. In insurance companies, ROE is influenced by several factors, most notably:

- Underwriting and pricing policy;
- Claims management efficiency;
- The size of technical reserves;
- Investment and reinsurance policy.

Therefore, ROE analysis should always be conducted in light of the company's risk profile.

3. Net Interest Margin (NIM)

The net interest margin is particularly relevant for insurance companies that rely heavily on investment activity. It measures the difference between investment returns and the cost of capital used to generate those returns(Lee, 2014, p. 687) and is calculated using the following formula:

$$NIM = \frac{\text{Financial result}}{\text{Total assets or investments}} \times 100$$

This indicator reflects the efficiency of investment management and the company's ability to achieve stable financial returns that support the technical results of its insurance operations.

The net investment margin (NIM) is particularly important in the following cases:

- Life insurance companies;
- Companies with large investment portfolios;
- Periods of interest rate volatility.

A high NIM indicates the company's success in deploying its funds efficiently, while a low NIM reflects weak investment returns or a high cost of capital.

Section Two: The Applied Aspect

This section aims to provide a comprehensive assessment of the efficiency of Algerian insurance companies (SAA) in risk management and profitability. This is achieved by analyzing developments in key financial and technical indicators and identifying the associated challenges and opportunities. It also seeks to identify the relationships between technical and managerial performance and financial results, contributing to practical recommendations for enhancing the sustainability and profitability of the insurance sector in the future.

First: Analyzing the Evolution of Risk Indicators

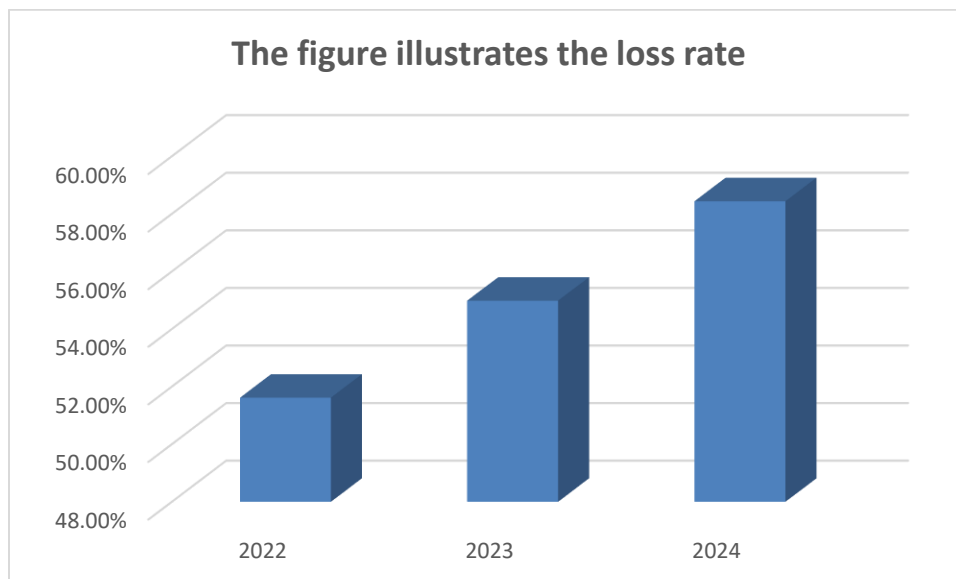
Risk indicators are a fundamental tool for measuring the extent to which insurance companies are exposed to unforeseen events that may affect their financial stability. This requirement aims to analyze the evolution of specific indicators during the period 2022-2024 in the Algerian Insurance Company (SAA) and identify trends that may affect the sector's financial sustainability.

1- Analysis of the evolution of the loss ratio

Table No. 01 shows the evolution of the loss rate

Loss ratio			
Year	2022	2023	2024
Net compensation	12,082,843,332.38	12,950,514,553.66	13,846,295,774.28
Earned premiums	23,409,362,916.51	23,552,943,751.06	23,694,112,488.39
ratio	51.62%	54.98%	58.44%

Prepared by the researchers based on the budget of SAA Insurance Algeria



Prepared by the researchers based on the outputs of the EXCEL program

Analysis:

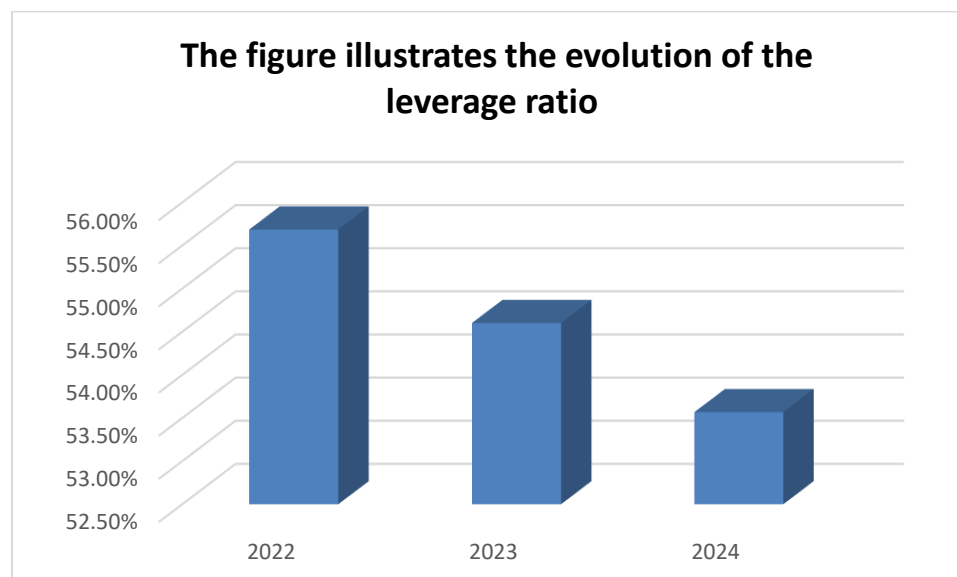
The loss ratio increased from 51.60% in 2022 to 55% in 2023 and then to 58.50% in 2024, reflecting an increase in claims compared to earned premiums. This increase indicates growing technical pressures and possibly the company expanding its coverage to include larger or more serious risks, which reduces the technical margin and increases operational risks. The continuation of this trend requires special attention to underwriting management and improved risk assessment to reduce future losses. The high ratio also reflects the need to review insurance policies, improve pricing, and strengthen claims management systems to ensure the sustainability of profitability, especially in light of potential market competition and rising customer expectations.

2. Analysis of the evolution of the leverage ratio

Table No. 02 shows the evolution of the leverage ratio.

Debt ratio (Leverage)			
Year	2022	2023	2024
Total Liabilities	54,294,989,357.47	53,956,848,094.35	53,666,640,929.11
Total Assets	97,504,235,601.91	98,819,102,717.81	100,184,968,833.72
Ratio	55.68%	54.60%	53.57%

Prepared by the researchers based on the budget of SAA Insurance Algeria



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Analysis:

The debt ratio decreased from 55.70% to 53.50%, reflecting a gradual improvement in the financial structure and a lower reliance on liabilities compared to assets. This improvement enhances financial stability and reduces funding risks, which is crucial in a sector heavily reliant on technical provisions and insurance risk. The lower leverage ratio, coupled with the improved expected return on equity

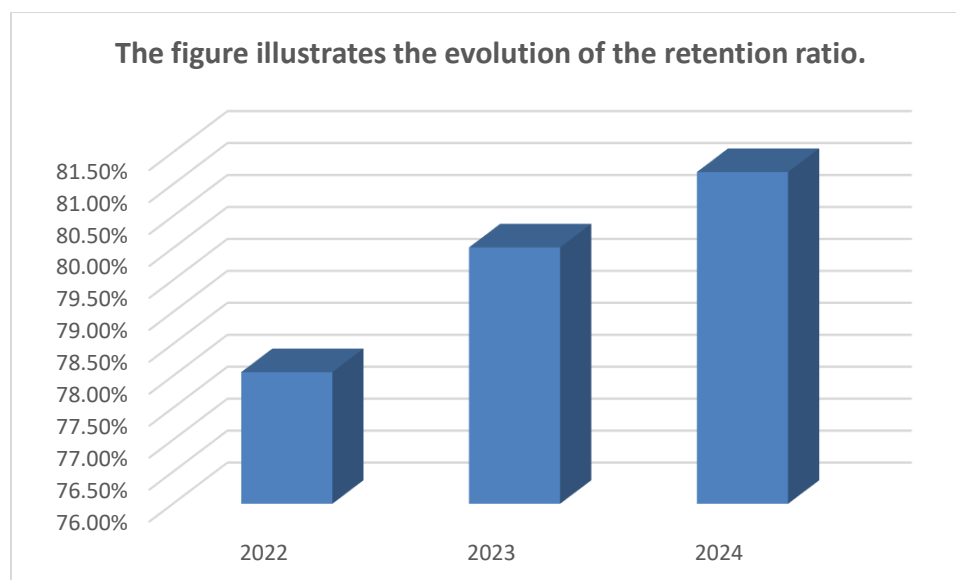
for 2024, indicates a better risk-reward balance. This allows the company to generate higher profits without resorting to significant external financing that would increase its liabilities. This situation provides flexibility in managing liquidity and future funding, enhancing its resilience to economic shocks or financial market volatility.

3. Retained Earnings Ratio Analysis

Table No. 03 shows the evolution of the Retention Ratio

Retention ratio			
Year	2022	2023	2024
NetInstallments	23,409,362,916.51	23,552,943,751.06	23,694,112,488.39
Gross Installments	29,988,755,785.65	29,436,861,601.77	29,182,947,417.89
Rate	78.06%	80.01%	81.19%

Prepared by the researchers based on the budget of SAA Insurance Algeria



Prepared by the researchers based on the outputs of the EXCEL program

Analysis:

The retention rate increased from 78% to 81.19% during the period, meaning the company retained a larger portion of earned premiums instead of transferring them to reinsurers. This trend enhances potential revenue and increases the resources available for investment and expansion. However, it also increases direct exposure to risk, especially with the higher loss ratio. A higher retention rate necessitates more careful management of underwriting policies and product pricing, along with strengthening risk management programs and developing sufficient reserves to cover future claims. In the long term, the ability to balance higher retention with technical risks is crucial for stable profitability and sustainable growth.

Second: Analysis of Profitability Indicators

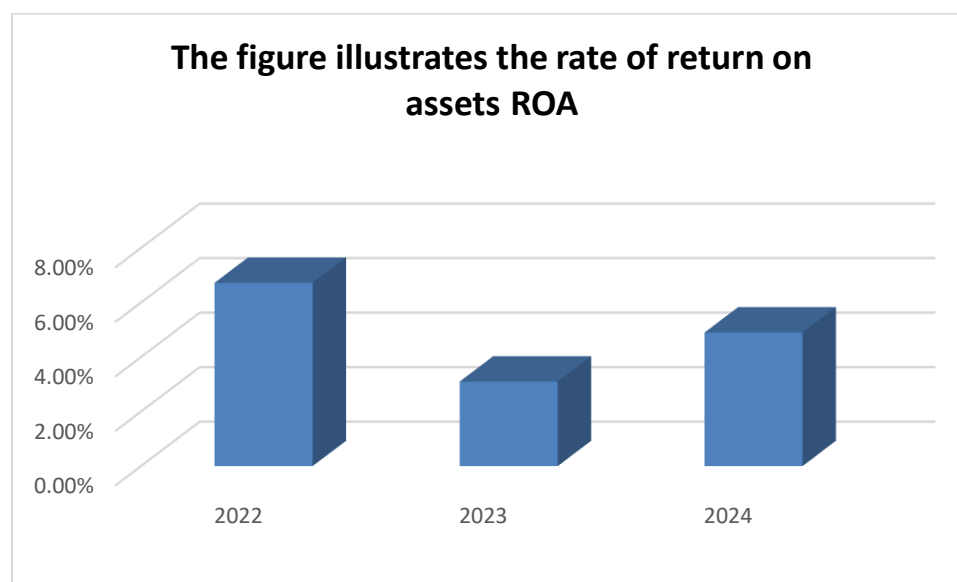
Profitability indicators play a pivotal role in measuring the efficiency of insurance companies in utilizing their financial resources to generate rewarding returns for shareholders. This section focuses on analyzing the evolution of profitability indicators during the period 2022–2024, such as return on assets (ROA), return on equity (ROE), and net interest margin (NIM), to assess the overall financial performance of companies and determine their ability to achieve a sustainable balance between profitability and risk management.

1. Analysis of the trend in the return on assets (ROA)

Table No. 4 shows the evolution of the return on assets (ROA) rate

Return on Assets (ROA)			
Year	2022	2023	2024
NetProfit	6,555,184,678.80	3,064,877,102.84	4,810,030,890.82
TotalAssets	97,504,235,601.91	98,819,102,717.81	98,161,669,159.86
Ratio	6.72%	3.10%	4.90%

Prepared by the researchers based on the budget of SAA Insurance Algeria



Prepared by the researchers based on the outputs of the EXCEL program

Analysis:

The return on assets (ROA) of SociétéAlgérienned'Assurance (SAA) experienced significant fluctuations during the period 2022–2024. It reached a relatively high level in 2022 (6.72%), reflecting efficient asset utilization and comfortable profitability, especially considering the nature of the insurance business, which typically involves moderate margins. However, it declined sharply in 2023 to 3.10% due to a decrease in net profit and increased technical pressures related to claims. This indicates a relative weakness in operational efficiency despite stable asset volumes. The ROA then improved again in 2024 to 4.90% as part of a gradual recovery driven by improved financial performance and better management of investment returns. Nevertheless, this improvement did not

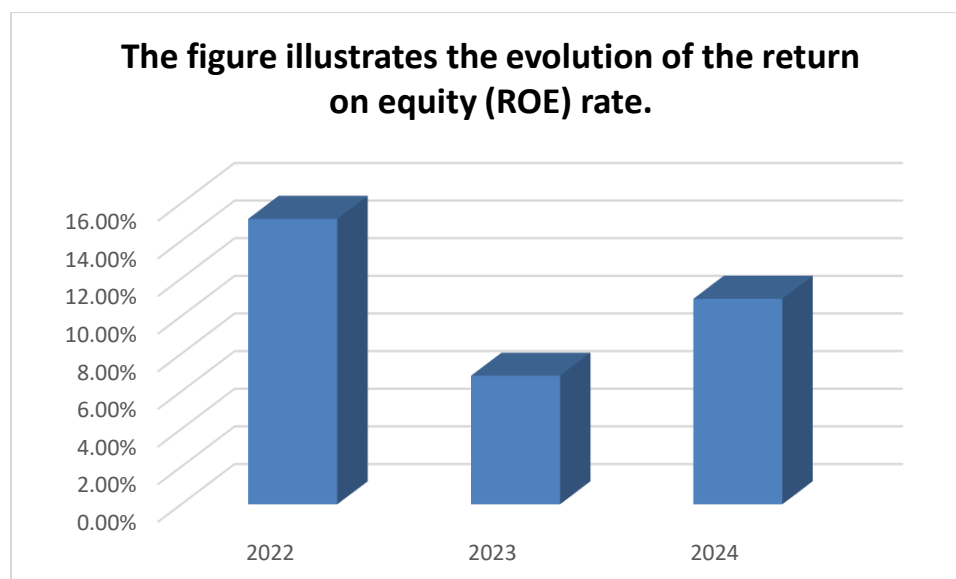
reach the 2022 level, suggesting that the company is still in the process of rebalancing its technical performance and investment returns. This also highlights the sensitivity of its profitability to fluctuations in insurance risks.

2. Analysis of the trend in the return on equity (ROE)

Table No. 5 shows the evolution of the return on equity (ROE) rate

The evolution of the return on equity (ROE) rate is illustrated			
Year	2022	2023	2024
NetProfit	6,555,184,678.80	3,064,877,102.84	4,810,030,890.82
TotalEquity	43,209,246,244.44	44,862,254,623.46	44,035,750,433.95
Ratio	15.17%	6.83%	10.92%

Prepared by the researchers based on the budget of SAA Insurance Algeria



Prepared by the researchers based on the outputs of the EXCEL program

Analysis:

The return on investment (ROE) fell sharply from 15.17% in 2022 to 6.83% in 2023, before rising to 10.92% in 2024. The significant decline in 2023 indicates a reduced ability to generate net profits from invested capital, which could diminish the company's attractiveness to shareholders and affect their confidence in management. This is likely due to a decrease in net profit resulting from increased expenses or weak technical performance, while shareholders' equity remained relatively stable, leading to a decline in capital return. The improvement in 2024 reflects management's ability to regain some efficiency in deploying equity, perhaps through process optimization, cost control, or enhanced operating and investment profitability. However, the 2024 ROE remains lower than its 2022 level, indicating that the company has not fully recovered its previous financial strength and

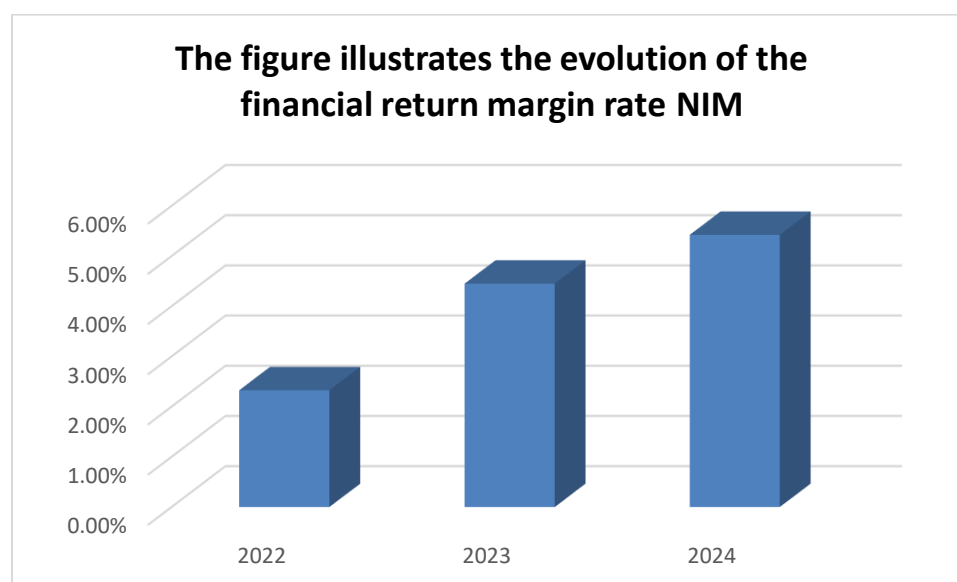
highlighting the need for strategies to enhance capital profitability and ensure sustainable returns for shareholders in the long term.

3. Analysis of the development of the net interest margin (NIM)

Table No. 06 shows the evolution of the financial return margin (NIM)

It illustrates the evolution of the financial return margin rate NIM			
Year	2022	2023	2024
Total Assets	97,504,235,601.91	98,819,102,717.81	100,184,968,833.72
Financial Result	2,268,289,157.36	4,397,825,391.33	5,432,908,614.57
Ratio	2.33%	4.45%	5.42%

Prepared by the researchers based on the budget of SAA Insurance Algeria



Prepared by the researchers based on the outputs of the EXCEL program

Analysis:

The net interest margin (NIM) increased from 2.33% in 2022 to 4.45% in 2023 and then to 5.42% in 2024. This is a positive indicator reflecting an improved return on income-generating assets relative to financing costs. This development reflects greater efficiency in investment portfolio management and diversification of income sources, allowing the company to offset some of the technical decline in profitability resulting from higher compensation or cost-cutting measures. The rise in NIM also indicates the company's ability to improve its interest income and financial investments, which enhances financial stability and increases its capacity to finance operations and new projects without significantly increasing debt. This indicator also reflects the quality of liquidity management and investment policies that focus on capitalizing on profitable opportunities while keeping risk within acceptable limits.

Third: Analyzing the Impact of Risk Management on the Profitability of SAA Insurance Companies During the Period 2022-2024

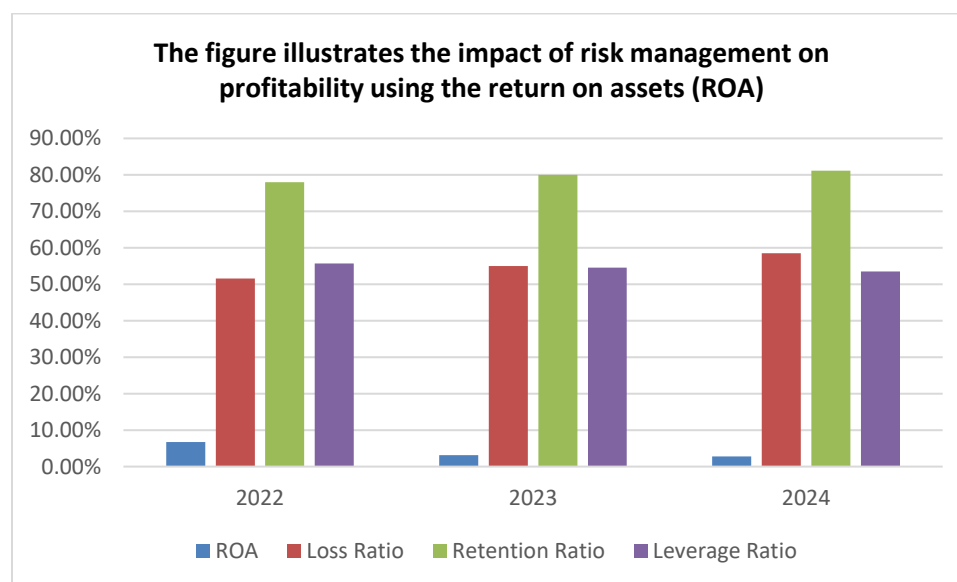
Analyzing the relationship between risk management and profitability is a fundamental aspect of evaluating the financial performance of insurance companies. This is due to the unique nature of this activity, which is based on bearing risks in exchange for financial premiums. An insurance company's success is not solely dependent on the volume of premiums collected, but also on its ability to control technical and financial risks and achieve a balance between compensation, retention policies, and the financing structure, on the one hand, and maximizing returns, on the other. Within this framework, this section aims to study the impact of risk management indicators on the profitability indicators of Société Algérienne d'Assurance (SAA) during the period 2022–2024. This is achieved by analyzing the interaction between the loss ratio, retention ratio, and debt ratio, and the financial performance indicators represented by return on assets, return on equity, and profit margin. The goal is to highlight the extent to which the effectiveness of risk management reflects on the stability and profitability of the company.

1. Analyzing the impact of risk management on profitability through the return on assets (ROA) ratio for the insurance company SAA during the period 2022-2024

Table 7 illustrates the impact of risk management on profitability through the return on assets (ROA) index

Indicator	2022	2023	2024
ROA	6.72%	3.10%	2.80%
Loss Ratio	51.60%	55%	58.50%
Retention Ratio	78%	80%	81.19%
Leverage Ratio	55.70%	54.60%	53.50%

Prepared by the researchers based on the budget of SAA Insurance Algeria



Prepared by the researchers based on the outputs of the EXCEL program

Analysis:

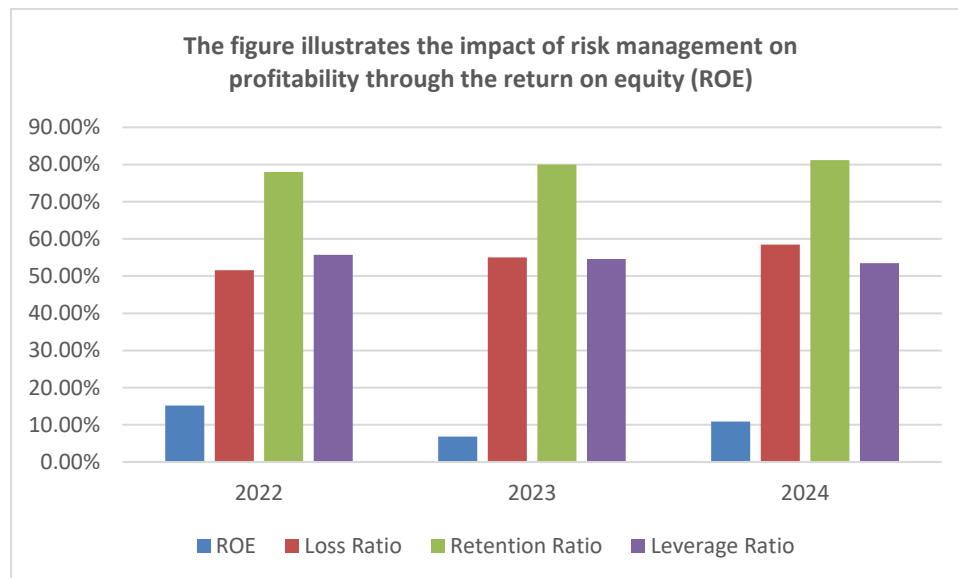
The results of the curve above indicate that the increase in the loss ratio from 51.60% in 2022 to 55% in 2023, and the accompanying decrease in return on assets (ROA) from 6.72% to 3.10%, are consistent with the findings of previous studies that confirmed that increased underwriting and claims risks lead to a decline in technical surplus and reduced profitability for insurance companies. The results also showed that a higher risk retention rate does not positively impact profitability unless supported by effective pricing and underwriting policies. High retention rates in the context of increased claims put additional pressure on financial performance. Conversely, the slight decrease in the debt ratio was insufficient to improve ROA, confirming that technical risks associated with underwriting and claims have a greater impact on financial performance than financial risks. Thus, the study's findings align with previous literature emphasizing that efficient insurance risk management is the primary factor in achieving financial stability and enhancing the long-term profitability of insurance companies.

1. Analyzing the impact of risk management on profitability through the return on equity (ROE) indicator for the SAA insurance company during the period 2022-2024

Table 8 illustrates the impact of risk management on profitability through the return on equity (ROE) indicator

Indicator	2022	2023	2024
ROE	15.17%	6.83%	10.92%
Loss Ratio	51.60%	55%	58.50%
Retention Ratio	78%	80%	81.19%
Leverage Ratio	55.70%	54.60%	53.50%

Prepared by the researchers based on the budget of SAA Insurance Algeria



Prepared by the researchers based on the outputs of the EXCEL program

Analysis:

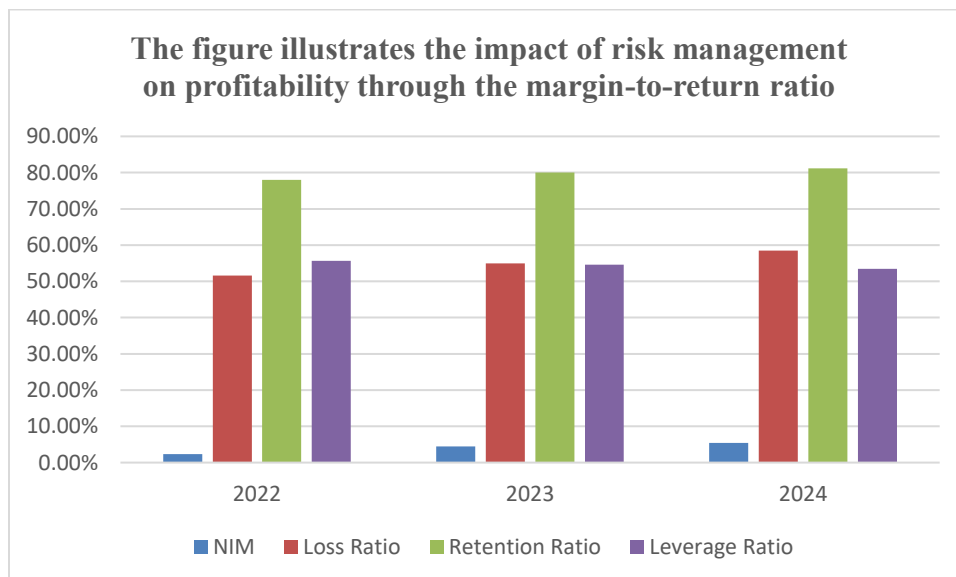
The results of the curve above indicate that the decline in return on equity (ROE) from 15.17% in 2022 to 6.83% in 2023, coinciding with an increase in the loss ratio from 51.60% to 55%, aligns with previous studies confirming that increased underwriting and claims risks lead to a decrease in available profits for shareholders and a decline in profitability indicators. The results also showed that a higher retention rate does not contribute to improved ROE unless supported by effective pricing and underwriting policies. High retention rates in the context of increased claims lead to inflated losses and a decline in financial performance. Conversely, a slight decrease in the debt ratio was insufficient to improve ROE, confirming that the impact of technical risks outweighs that of the capital structure in determining the profitability of insurance companies. Thus, the study's findings are consistent with previous literature that enhancing shareholder profitability depends primarily on the efficiency of insurance risk management, particularly underwriting and claims risk management, to ensure profit stability and improved long-term financial performance.

2. Analyzing the impact of risk management on profitability using the margin-to-return ratio for SAA insurance companies during the period 2022-2024

Table 9 illustrates the impact of risk management on profitability through the margin-to-return ratio

Indicator	2022	2023	2024
NIM	2.33%	4.45%	5.42%
LossRatio	51.60%	55%	58.50%
Retention Ratio	78%	80%	81.19%
Leverage Ratio	55.70%	54.60%	53.50%

Prepared by the researchers based on the budget of SAA Insurance Algeria



Prepared by the researchers based on the outputs of the EXCEL program

Analysis:

The results of the curve above indicate that the increase in the loss ratio from 51.60% to 55% did not prevent an improvement in the net interest margin (NIM). This aligns with previous studies that confirmed that the decline in technical results resulting from higher claims can be partially offset by improved investment returns and more efficient allocation of financial assets. The results also showed that while the higher retention rate contributed to increased investable resources and improved the NIM, it may also increase exposure to technical risks if not accompanied by effective underwriting and claims policies. On the other hand, the slight decrease in the leverage ratio contributed to greater financial stability and a more favorable investment management environment, which supported financial performance despite continued technical pressures. Thus, the results confirm that the profitability of insurance companies depends on the integration of efficient technical risk management and effective investment management. Investment activity can mitigate the effects of operating losses and contribute to achieving stability and sustainable profitability.

Conclusion

This study concluded that risk management is a crucial factor in improving the profitability and financial stability of insurance companies, a finding corroborated by the case study of SAA Insurance Algeria during the period 2022–2024. The results showed that a high loss ratio negatively impacted both the return on assets (ROA) and return on equity (ROE), reflecting the direct effect of technical risks associated with underwriting and claims on financial performance. Conversely, the study indicated that an improved net interest margin (NIM) reflects the compensatory role of investment activity, as efficient asset and investment management mitigated the impact of declining technical results. The results also demonstrated that a higher retention rate only adds value to profitability when accompanied by effective pricing and underwriting policies, while the impact of a slight decrease in the debt ratio was limited compared to the effect of technical risks.

The results further showed that a higher retention ratio only adds value to profitability when accompanied by effective pricing and underwriting policies, while the impact of a slight decrease in the debt ratio was limited compared to the impact of technical risks. Accordingly, the study confirms that achieving sustainable profitability in insurance companies does not depend solely on expanding insurance activity or improving the financial structure, but is based primarily on the efficiency of managing technical and financial risks, through developing underwriting policies, enhancing claims management, and improving investment strategies, in order to ensure a balance between return and risk, and to enhance the competitiveness and financial stability of insurance companies in the long term.

Recommendations

In light of the study's findings, the following recommendations can be made:

- Strengthen risk management systems by developing integrated mechanisms for identifying, measuring, and monitoring risks, thereby minimizing technical losses and improving financial performance.
- Improve underwriting and pricing policies by adopting accurate actuarial methods that are appropriate to the level of risk, contributing to a balance between premiums and claims.
- Reassess the retention and reinsurance policy to achieve a balance between maximizing revenues and minimizing exposure to high risks, while considering the company's risk tolerance.
- Enhance investment management efficiency by diversifying investment portfolios and directing them towards instruments with stable returns and acceptable risk levels, to support profitability and offset technical fluctuations.
- Continue improving the financial structure and maintaining appropriate solvency levels, thereby enhancing the company's ability to meet its obligations and withstand future shocks.
- Invest in digital transformation and data analytics systems to develop risk assessment processes, claims forecasting, and improve the speed and accuracy of decision-making.
- Develop training and qualification programs for employees in the fields of risk management, underwriting, and investment, thereby increasing the efficiency of risk management and enhancing institutional performance. Conducting future studies involving a broader sample of Algerian insurance companies, employing more advanced benchmark models to examine the impact of risk management on various financial and operational performance indicators.

These recommendations represent a practical framework that can contribute to enhancing the profitability of insurance companies and ensuring the sustainability of their financial performance in an environment characterized by increasing risks and economic challenges.

Declarations

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Data Availability: The data are available from the sources cited in the article.

Ethical Approval: Not applicable.

AI Disclosure: The authors declare that generative AI was not used in the research or preparation of the manuscript.

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