Journal of Economics, Finance and Management (JEFM)
ISSN: 2958-7360
Vol. 3, No. 1, February 2024

Comparative Analysis of Solvency and Risk Management between Conventional and Participative Insurance (Takaful): The Case of Morocco

Analyse Comparative de la Solvabilité et de la Gestion des Risques entre les Assurances Conventionnelles et Participatives (Takaful) : Le Cas du Maroc

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Abstract: Against a backdrop of sustained growth in participative insurance in Morocco, regulation, consumer awareness and the development of suitable products are emerging as crucial challenges. Although progress has been made in integrating these insurances into the legal framework, further efforts are needed to ensure effective supervision and consistent applicationof Sharia principles. At the same time, increased public awareness of the benefits and specific features of participatory insurance is essential to foster informed adoption. In addition, the industry must continue to innovate and diversify its products to meet the varied needs of customers, requiring a thorough understanding of consumer preferences and close collaborationwith Islamic finance experts. Despite these challenges, participatory insurance offers promisingpotential to enhance the inclusiveness and ethics of the financial sector in Morocco, subject tocontinued stakeholder engagement and adequate regulatory support.

Keywords: Conventional insurance; Participative insurance (Takaful); Solvency; Risk.

Digital Object Identifier (DOI): https://doi.org/10.5281/zenodo.10755880

1. Introduction :

In Morocco's dynamic insurance landscape, the emergence of new models and practices reflectsthe country's socio-economic and cultural evolutions. This study aims to explore and compare two distinct approaches to insurance: conventional insurance, representing the traditional modelbased on established financial norms, and participatory insurance, also known as Takaful, basedon Sharia principles.[1].

The insurance industry is a crucial pillar of economic and social stability, offering financial protection against risks and unforeseen events. In Morocco, this sector is constantly evolving, facing new challenges and changing consumer demands. In this context, it is essential to analyzein depth the different approaches adopted by insurers to understand their impact on solvency, risk management and the satisfaction of customer needs[2].

Conventional insurers operate according to the norms and practices established by traditional finance, while participatory insurers are based on ethical principles such as risk sharing and absence of interest. These two models differ fundamentally in their approach to pricing, claimsmanagement and governance, raising crucial questions about their effectiveness and adaptability to the Moroccan context.

Through this comparative analysis, we will seek to highlight the advantages and disadvantagesof each model, examining their implications for insurer solvency, risk management andconsumer protection. In addition, we will explore development opportunities for participatory insurance in a regulatory environment often designed for conventional financial institutions[3].

This study will help to enrich understanding of the dynamics of the Moroccan insurance marketand provide valuable insights for industry professionals, regulators and policymakers seeking to promote sustainable and inclusive growth in this esse The year 2022 highlighted the resilience of the Moroccan insurance sector despite a complex economic context. With sales up8.5% on the previous year, reaching DH54.5 billion, the sector demonstrated its ability to navigate through difficult conditions. However, the persistent challenges of the financial marketled to a notable decline in unrealized capital gains (-53.8%) and the financial balance (- 23.8%)[4].

Despite these fluctuations, the Moroccan insurance sector maintained a positive performance, recording earnings of 4 billion dirhams (+1.8%) in 2022, with a return on equity (ROE) of 9.4%.However, lower unrealized capital gains affected the sector's solvency margin, reducing it to 312.7% from 370.4% the previous year. Although this margin remains above the regulatory threshold, it currently only covers underwriting risk, underlining the limits of resilience in a constantly changing environment[5].

In addition to financial performance, the Moroccan insurance sector faces major regulatory challenges, notably the transition to a risk-based solvency regime, similar to Solvency II in Europe. At present, Moroccan insurance companies operate under a solvency regime inspired by the European "Solvency I" directive, which shows its limitations by taking into account onlytechnical risk.

In this article, we will look in detail at the issues of solvency and risk management in the specificMoroccan context, comparing conventional and participatory insurance approaches, also known as Takaful. We will analyze the challenges and opportunities presented by each model,highlighting the regulatory and practical implications for the Moroccan insurance sector.ntiel to the national economy.

2. Theoretical framework :

Our research is based on a sound theoretical foundation aimed at exploring the fundamental differences in solvency assessment between conventional insurance companies and Takaful insurers. Traditionally, the solvency of conventional insurance companies is assessed through standard financial indicators such as the solvency ratio and technical reserves. These measuresprovide a quantitative assessment of an insurance company's ability to meet its financial obligations in the event of a claim[6].

However, Takaful insurance operates according to distinct principles, notably the prohibition of interest (riba) and the mutualization of risk (Tabarru), in line with Sharia principles. These ethical principles influence the way solvency and risk are managed in this alternative system. Unlike conventional insurance companies, where premiums are collected as payment for services provided, in the Takaful model, premiums are regarded as contributions to a commonfund used to indemnify claims.

This paradigm shift has significant implications for solvency assessment. Rather than focusingsolely on financial aspects, assessing solvency in the Takaful framework requires a thorough understanding of Shariah principles and their application in risk management[7]. Consequently,our research relies on a theoretical approach that integrates both traditional financial aspects and Islamic ethical principles to assess the solvency of Takaful insurance.

By analyzing these fundamental differences within the theoretical framework, our research aimsto provide valuable insights into how conventional insurance companies and Takaful insurers manage solvency and risk, as well as identifying the challenges and opportunities specific toeach model in the Moroccan context.

3. Towards an Inclusive and Ethical Future: Insurance in Morocco

3.1.Conventional insurance: a pillar of financial security in Morocco

Conventional insurance occupies a central place in Morocco's financial landscape, playing a crucial role in protecting property and people against unforeseen risks. As a pillar of financial security, they offer a diverse range of products and services, from life and health insurance to motor and home insurance, meeting the varied needs of the Moroccan population.[8].

One of the key advantages of conventional insurance is its proven approach to risk management.By transferring risk from the insured to the insurance company in return for premium payments,they provide essential protection against unforeseen events such as accidents, illness and naturaldisasters. Thanks to their actuarial expertise and extensive distribution networks, conventionalinsurance companies can accurately assess risks and provide solutions tailored to each individual and company.

At the same time, conventional insurance also contributes to the country's financial and economic stability by mobilizing long-term resources to finance infrastructure and developmentprojects. By investing premiums collected in diversified assets such as bonds, equities and realestate, insurance companies contribute to economic growth and job creation, while offering attractive returns to policyholders and investors alike.

However, despite their many advantages, conventional insurance faces a number of challengesin the Moroccan context. Increasing competition, volatile financial markets and changing demographics are all factors forcing insurance companies to constantly innovate and adapt to new market realities. In addition, strict solvency and governance regulations require rigorous risk management and compliance with international standards[9].

Against this backdrop, conventional insurance continues to play an essential role in theprotection and prosperity of individuals, families and businesses in Morocco. By offering flexible, innovative solutions, investing in financial education and building consumer confidence, these insurers are helping to build a safer, more resilient future for all Moroccans.

3.2. Participatory Insurance: An Inclusive Approach to Financial Protection in Morocco

Participatory insurance, also known as Takaful, is an alternative and ethical form of insurancethat is gaining in popularity in Morocco. Founded on Sharia principles, these insurances offer an inclusive and collaborative approach to financial protection, based on solidarity and risk- sharing within the community.

At the heart of the participative insurance concept is the principle of co-participation, wherebyrisks are mutualized among the members of the insurance pool. Unlike conventional insurance,which is based on a risk-transfer model, participative insurance encourages collective responsibility and mutual support between policyholders. This approach fosters greater transparency and trust in the system, reinforcing the bond of solidarity within society.

Participatory insurance offers a diverse range of products and services, covering a broad spectrum of financial needs, from life and health insurance to motor and home insurance. By integrating Sharia principles into product design and management, these insurances meet customers' ethical and religious requirements, offering a solution tailored to their lifestyle and beliefs.

In addition to their inclusive approach, participatory insurances also contribute to Morocco's economic and social development. By investing the premiums collected in Sharia-compliant projects such as infrastructure, education and housing, these insurances promote economic growth and job creation, while respecting the ethical and moral values of society.

However, despite their potential and benefits, participatory insurance faces a number of challenges in the Moroccan context. Consumer awareness and education, the creation of an appropriate regulatory infrastructure and the development of innovative products tailored to local needs are all challenges to be met to ensure the success and sustainability of this sector[10].

Overall, participative insurance represents a significant evolution in Morocco's financial landscape, offering an inclusive and ethical approach to financial protection. By promoting solidarity, transparency and responsibility, these insurances contribute to building a fairer, moreresilient society, where everyone can benefit from financial protection tailored to their needs and values.[11].

4. Technical and Financial Risks in the Moroccan Insurance Sector

4.1. The Risk of Underpricing in the Insurance Sector

Under-pricing, as a major risk in the insurance sector, is a central concern for companies operating in Morocco. This phenomenon arises when insurance premiums are set at a level thatis insufficient to cover the actual cost of claims. This may be due to a variety of factors, including incorrect risk assessment or fierce competition in the market, which encourages insurers to cut prices to attract customers.

One of the most serious consequences of under-pricing is the financial imbalance it creates within insurance companies. When premiums collected are insufficient to cover actual claims,insurers are faced with substantial financial losses. These losses can deplete the company's reserves and jeopardize its long-term solvency.[12].

A concrete example of this risk is that of car insurance companies who, in the interests of competitiveness, may be tempted to offer attractive premiums that are insufficient to cover accident costs. In such cases, if the number or amount of claims exceeds initial forecasts, insurance companies can find themselves in a delicate, even critical, financial situation.

Under-pricing can also have an impact on the quality of insurance services offered to customers.Indeed, when premiums are set too low, insurers may be forced to limit cover or increase deductibles, thereby reducing the perceived value of insurance for policyholders.[13].

To mitigate the risk of under-pricing, insurance companies need to adopt a prudent approach topricing their products. This involves a rigorous assessment of the risks associated with each insurance policy, as well as a thorough analysis of loss trends and claims costs. In addition, companies must ensure that their pricing policies adequately reflect the level of risk incurred by policyholders, while ensuring the company's long-term financial viability.

The risk of under-pricing represents a major challenge for insurance companies in Morocco, requiring careful and proactive management of product pricing. By adopting appropriate pricingstrategies and closely monitoring the performance of their insurance portfolios, companies canminimize financial risks and ensure the long-term viability of their business.

4.2. Valuation Risk in the Insurance Sector

Valuation risk is a major concern for insurance companies operating in Morocco, as it relates to the accuracy of technical reserves, which are essential to guarantee the solvency and financialstability of these companies. This risk materializes when companies underestimate future claims liabilities, which can lead to insufficient funds to compensate policyholders in the eventof a claim[14].

Underestimation of technical reserves can result from a variety of factors, such as inadequate estimation methods, insufficient data or incorrect assumptions about claims frequency and severity. For example, insurance companies may use mathematical models to estimate technicalreserves, but if these models are not properly calibrated, or if the input data is incomplete or inaccurate, the results may be biased.

The consequences of incorrectly valuing technical reserves can be serious for insurancecompanies. In the event of a major claim or an accumulation of claims, insufficient funds can compromise the company's ability to honor its commitments to policyholders, thereby jeopardizing its solvency. What's more, a poor valuation of technical reserves can distort the company's financial results, with negative repercussions on its reputation and credibility with investors and regulators.

To mitigate valuation risk, insurance companies must adopt prudent and rigorous risk management practices. This includes a thorough assessment of the estimation methods used, aswell as regular analysis of claims data and market trends. In addition, companies mustimplement effective internal control mechanisms to guarantee the accuracy and reliability of their technical reserves.

Valuation risk represents a significant challenge for insurance companies in Morocco, requiringa proactive and attentive approach to risk management. By adopting sound risk management practices and ensuring that their estimation methods are robust and accurate, companies can minimize the financial risks associated with misvalued technical reserves and guarantee their long-term financial stability.

4.3. Mass Claims Risk in the Insurance Sector

The risk of mass claims is a major concern for insurance companies operating in Morocco, as it relates to the occurrence of large claims in number or amount, exceeding insurers' usual forecasts. These exceptional events can exert significant financial pressure on insurancecompanies, compromising their ability to honor their commitments to policyholders andjeopardizing their solvency.

Mass casualties can take many forms, such as natural disasters, major industrial accidents or terrorist events. These events can result in significant losses for insurance companies, particularly in terms of repair costs, compensation for victims and indirect financial losses.[15].

The financial consequences of mass claims can be severe for insurance companies, particularlyif they are not adequately prepared to deal with them. A sudden and unexpected occurrence oflarge claims can rapidly deplete a company's reserves, compromising its ability to pay outstanding claims and meet policyholders' future needs.

To mitigate the risk of mass claims, insurance companies need to implement effective, proactiverisk management strategies. This includes adequate reinsurance, which transfers part of the riskto other insurers, and the establishment of specific technical reserves for large risks. In addition,companies need to draw up detailed crisis management plans to respond quickly and effectivelyto mass claims when they occur.

The risk of mass claims represents a major challenge for insurance companies in Morocco, requiring a proactive and prudent approach to risk management. By adopting sound reinsurancestrategies, building up adequate technical reserves and developing effective crisis managementplans, companies can mitigate the financial consequences of mass claims and guarantee their long-term financial stability.

4.4. Investment Risk Management in the Insurance Sector

Insurance companies in Morocco face significant risks associated with their investments, whichare essential to support their operations. Among these risks is the danger of seeing the value oftheir financial assets fall, a common phenomenon in unstable markets. This depreciation can lead to significant financial losses, jeopardizing insurers' financial health[16].

Another major risk is liquidity, which arises when insurance companies find it difficult to sell their investments quickly to meet claims payments. In difficult market situations, financial assets can become illiquid, complicating insurers' ability to convert their investments into cash.

The risk of mismatches between assets and liabilities is also a major concern. If insurance companies' investments do not match their obligations to policyholders in terms of timing andamount, they can be exposed to significant financial risks.

Finally, interest rate fluctuations represent an additional challenge for insurers, particularly in a low-rate environment. These variations can have an impact on the value of bonds and other fixed-income investments, affecting the overall profitability of insurance companies.

To mitigate these risks, insurance companies need to adopt a prudent and diversified approachto managing their investment portfolios. This includes asset diversification, regular monitoringof financial markets and the application of appropriate risk management strategies. By implementing these practices, insurers can better guard against market fluctuations and protecttheir long-term financial stability. By analyzing these risks, insurance companies can better understand the challenges they face and implement effective risk management strategies to protect their financial stability and theirability to provide quality insurance services to their customers[17]**.**

5. Comparative Analysis of Solvency I and Solvency II in the Insurance Sector

The solvency of insurance companies is a fundamental pillar of their business, ensuring their ability to honor their commitments to policyholders. In Morocco, as in many other countries, two solvency regimes are widely discussed: Solvency I and Solvency II. Each of these regimeshas distinct characteristics that influence insurers' risk management and financial resilience.

Solvency I, initially adopted in many European countries, relies on simple rules and basic financial indicators to assess the solvency of insurance companies. This regime focusesprimarily on underwriting risk, and uses solvency ratios to measure a company's ability to coverits liabilities. However, Solvency I has significant limitations, notably failing to take into account certain specific risks and lacking sophistication in its risk management approach[18].

Solvency II, on the other hand, represents a significant evolution in the regulation of insurer solvency, introducing a more comprehensive and sophisticated framework for assessing and managing risk. This regime is based on three interdependent pillars: quantitative requirements, qualitative requirements and market discipline. Quantitative requirements include more complex calculations of shareholders' equity and technical provisions, as well as more stringentsolvency capital requirements. Qualitative requirements aim to strengthen corporate governance and risk management practices, while market discipline promotes transparency andfinancial communication.

Compared to Solvency I, Solvency II offers a more holistic and nuanced approach to risk management, enabling insurers to better understand and manage the multiple risks they face. However, implementing Solvency II can also be a challenge for insurance companies, due to its complexity and higher operational requirements.

The transition from Solvency I to Solvency II represents an important evolution in insurance solvency regulation, providing a more robust and comprehensive framework for assessing andmanaging risk. While this may require additional adjustments and investment on the part of insurers, it should also strengthen the long-term stability and resilience of the insurance sector[19].

5.1. Challenges and Limits of Solvency I in the Moroccan Insurance Sector

This section looks at the solvency challenges and limitations faced by insurance companies operating in Morocco, highlighting the problematic aspects of the current solvency margin calculation system, directly inspired by Solvency I. We examine in detail the technical and financial risks facing these companies. Among these, the risk of under-pricing emerges as a major concern, possibly resulting from errors in premium calculation or estimates based on insufficient or erroneous statistical data. Similarly, valuation risk, characterized by an underestimation of technical reserves, raises concerns about the ability of companies to anticipate and effectively manage commitments to policyholders. The risk of mass claims, linked to the occurrence of large claims in number or amount, also represents a significant challenge for Moroccan insurance companies, requiring adequate reinsurance and the establishment of specific technical reserves. At the same time, investment-related risks, such asimpairment, liquidity and asset-liability mismatches, add to the complexity of the risk landscapefaced by these companies. This analysis thus highlights the shortcomings of the current regulatory framework, and underscores the need for reform to take better account of the diversity and dynamics of the risks to which insurance companies operating in the Moroccan market are exposed.

5.2. Comparative analysis

One of the main differences between conventional and participative insurance lies in their approach to risk management. Conventional insurance generally transfers risks from policyholders to the insurance company, whereas Takaful insurance operates on a co- participation model, where risks are shared between the members of the insurance pool. This approach promotes greater transparency and accountability in risk management, while reinforcing a sense of community among policyholders.

In terms of solvency, conventional insurance companies are regulated by government authorities and must comply with specific capitalization and reserve standards. Takaful insurers are also governed by regulations, but their compliance with Sharia principles adds an extra layerof supervision and control.

5.3. Risk Management Approach :

Conventional insurance is characterized by a model in which risks are generally transferred from the insured to the insurance company. In contrast, participative insurances, such as Takaful, adopt a co-participation model where risks are shared between the members of the insurance pool. This approach promotes greater transparency and accountability in risk management, reinforcing a sense of community among policyholders.

Table 1: Comparison of Risk Management Approaches: Conventional Insurance vs. Participative Insurance

Features	Conventional Insurance	Participatory insurance (Takaful)
Risk transfer	Risks transferred from the insured to the insurance company.	Risks shared between insurance pool members.
Transparency and accountability	The level of transparency and accountability varies according to each company's practices.	Promotes transparency and accountability by involving members in risk management.
Community	Weak community aspect.	Reinforces the sense of community among policyholders.

Source : Takaful Insurance: Principles and Advantages

5.4. Control Frame

In the case of conventional insurance, regulation is carried out by government authorities, whoimpose specific capitalization and reserve standards. Participatory insurance, on the other hand,is also subject to regulation, but must also comply with Sharia principles. This additional compliance requires additional supervision and control, often provided by religious bodies or dedicated authorities.

Table 2: Comparison of Regulatory Frameworks: Conventional vs. Participatory Insurance

Features	Conventional Insurance	Participatory insurance (Takaful)
Regulatory Authority	Regulated by government authorities.	Also governed by specific regulations.
Compliance with Sharia Principles	Not applicable.	Compliance with Sharia principles, with supervision by religious bodies or dedicated authorities.
Supervision and Control	Supervised by financial regulators.	Adds additional supervision and control based on Sharia principles.

Source : Takaful Insurance - An Islamic Alternative to Conventional Insurance

This comparison highlights the fundamental differences in risk management approach and regulatory framework between conventional and participative insurance. Participative insurersare distinguished by their co-participation model and compliance with Sharia principles, whichinfluence the way risks are managed and supervised.

5.5. The Challenges and Prospects of Participative Insurance in Morocco

In the Moroccan context, participatory insurance has emerged as a viable alternative toconventional insurance, attracting the growing attention of consumers seeking financial solutions in line with their values and beliefs. This remarkable growth in the sector testifies to the increasing importance attached to ethics and religious compliance in financial services. However, despite these advances, several challenges remain, compromising the full realizationof the potential of participatory insurance in Morocco.

One of the main challenges facing participatory insurance is the issue of regulation. Although Morocco has taken steps to integrate participatory insurance into its regulatory framework, gapsremain, particularly with regard to effective supervision and oversight of the sector. Further efforts are needed to clarify regulatory guidelines, strengthen control mechanisms and ensure consistent application of Sharia principles in all facets of participatory insurance operations.

Another major challenge lies in consumer awareness and education. Despite the rapid growth of the sector, many Moroccans remain unfamiliar with the concepts and benefits of participatoryinsurance. Targeted awareness campaigns and educational programs are needed to inform the public about the products available, their unique features and their alignment with Islamic principles, in order to promote wider adoption and understanding.

In addition, developing products tailored to customers' specific needs remains a crucial challenge. As demand for Sharia-compliant insurance products continues to grow, insurers mustinnovate and diversify their offering to meet the varied needs of consumers. This requires a thorough understanding of customer preferences and requirements, as well as close collaboration with Islamic finance experts to design innovative and competitive solutions.

Despite these challenges, participative insurance offers promising prospects for the future of the insurance sector in Morocco. By integrating the principles of solidarity, fairness and responsibility into their operations, these insurances are helping to build a more inclusive and ethical financial system that meets the needs and values of Moroccan society. With continued commitment from stakeholders and increased support from regulatory authorities, participatoryinsurers are well placed to play an essential role in promoting financial stability and economicprosperity in Morocco.

6. Conclusion:

A comparative analysis of solvency and risk management between conventional and participatory insurance in Morocco offers rich insights into the future of the country's insurancesector. By examining fundamental differences in approaches and regulatory frameworks, this study raises crucial questions for researchers, practitioners and policymakers in the sector.

From a theoretical point of view, this comparison highlights the importance of recognizing andunderstanding the specificities of different insurance models. Whereas conventional insurance is based on traditional risk transfer principles, participatory insurance introduces mechanisms of co-participation and compliance with Sharia principles. This diversity of models offers fertileground for future research, enabling us to explore the economic, social and ethical implicationsof each approach.

From a managerial point of view, this comparative analysis offers valuable insights forinsurance practitioners in Morocco. By understanding the strengths and weaknesses of each model, insurance companies can adjust their risk management and regulatory compliance strategies to meet the specific needs of the Moroccan market. In addition, this comparison highlights the importance of innovation and adaptability in a constantly evolving industry, encouraging companies to seek innovative solutions to meet future challenges.

Finally, from the point of view of policymakers, this study highlights the need for an inclusiveand balanced approach to regulating the insurance sector. By recognizing the diversity of insurance models and encouraging fair competition, regulators can foster an environment conducive to innovation and sustainable growth in the sector. Furthermore, by promoting transparency and accountability, regulators can strengthen consumer confidence in the insurance system and contribute to better protection of policyholders' interests.

In conclusion, the comparative analysis of solvency and risk management between conventional and participatory insurance in Morocco opens up new perspectives for research, management and regulation of the insurance sector. By combining a rigorous theoretical approach with significant practical implications, this study provides a comprehensive framework for strategic thinking and concerted action to promote the efficiency, sustainabilityand inclusiveness of the country's insurance sector.

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