Journal of Business and Economic Options



Governance, Ethics, and Transparency: A Comparative Analysis of Takaful and Conventional Insurance in Malaysia

Aun Sufyana, Syed Othmanb

Abstract

The insurance industry is a main part of both affecting financial stability and economic resilience, and its models are highly disparate from an ethical and operationally oriented point of view. In a duopoly financial system of two types of financial instruments (Malaysia has mainly conventional insurance, while Malaysia has Islamic insurance (Takaful)), the issue here is related to compliance, governance, and transparency, which contribute to the evaluation of their performance. This paper contributes a comparative analysis between Takaful insurance and conventional insurance between 2016 and 2024 with regard to governance structures, ethical behavior and compliance, financial disclosure, and consumer protection. Using a mixed methods approach, which combines thematic analysis of governance structures and quantitative analysis using an Insurance Disclosure Score and a Comparative Ethics Index, this study compares and contrasts the capabilities of each model to address the liability of stakeholders and regulatory imperatives. The findings indicate that while the disclosures of both systems satisfy minimum governance subsurface, Takaful providers are otherwise more ethical than insurers in ethics-related disclosures, the disclosures on the operating model, and consumer protection due to the existence of double jurisdiction and Shariah supervisor. On the contrary side, conventional insurers, inflamed by no unfamiliar corporate banking, have as a rule more reserve power in monetary inclusion and regularity of expressions, and enjoy a superior institutional foundation and normalized methodologies for regulations. Results indicate that Takaful blends a religious mandate and ethical values in the governance culture, whereas conventional insurance places more emphasis on the financial performance, as well as being transparent to citizens and investors. From the findings, it is concluded that the dual financial system in Malaysia supports the presence of these two models. However, it requires more alignment in Shariah standards, more consumer disclosures, and creative regulatory solutions for sustainability and transparency, inclusiveness, and resilience of the industry.

Keywords: Takaful, Conventional Insurance, Governance, Ethical Compliance

JEL Codes: G22, G28, M14, Z12

Article's History

Received: 20th July 2025 Revised: 27th September 2025 Accepted: 28th September 2025 Published: 30th September 2025

Citation:

Sufyan, A., & Othman, S. (2025). Governance, Ethics, and Transparency: A Comparative Analysis of Takaful and Conventional Insurance in Malaysia *Journal Business and Economic Options*, 8(3), 13-23.

DOI:

https://doi.org/10.5281/zenodo.17338416

Copyright: © 2025 by the authors. Licensee RESDO.

This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https://creativecommons.org/licenses/by/4.o/).

1. INTRODUCTION

In the context of the current financial system, insurance becomes an essential stone not only in the transfer of risk management, but also in the inclusion of income and the economic resilience of actors individually and of some organizations in general. The insurance mechanism does a good job in stabilizing the economy as a means of absorbing various contingencies that cannot be insured against and thus allows the best operation of the capital markets (Outreville, 2013). The last twenty years have brought an extremely dramatic change in the structure of the global insurance sector, and during this period we observe the transformation taking place in the near market of trick emerging economies in some Asian and Middle Eastern countries. Nevertheless, it has also been driven by different cultural, legal, religious, as well as economic factors, on one hand that influence the demand side and on the other, which comes to the institutional structure (Al-Darwish et al., 2011; Ernst & Young, 2021; Iqbal & Nasir, 2023; Ali et al., 2025). Within this context, two paradigms of insurance - conventional insurance and Islamic insurance (referred to as Takaful) - which conform to the legal and financial principles of Western (secular economies) and ethics and jurisprudence of Islamic economic thought,

^a Faculty of Business and Economics, Universiti Malaya, Kuala Lumpur, Malaysia

^b Faculty of Business and Economics, Universiti Malaya, Kuala Lumpur, Malaysia, <u>syedothman.economists@yahoo.com</u>

respectively (Obaidullah, 2005; Ismail & Saeed, 2019; Raza & Khan, 2023; Khan et al., 2022; Ashraf et al., 2025) have developed and strongly coexist in practice. Although both models intend to provide economic security from the point of view of finance, there is a strong contradiction in the foundations of their theory, internal structures, and the regulatory framework.

The traditional method is based on the principle of the transfer of risk, by which the insurance company assumes the risk of the insured in return for his or her periodic payment of payments for insurance premiums. The investment and operational schemes of traditional insurance firms traditionally include interest-bearing investment tools harmonized within the global capital markets (Rejda & McNamara, 2017; Ismail & Saeed, 2019; Audi et al., 2021). However, adoption of conventional insurance in Muslim-majority societies has met with significant resistance, which is attributed to the perceived incompatibility of this mechanism with Islamic ethical arenas. Namely, traditional insurance is usually criticized due to the inclusion of elements such as riba (interest), gharaar (excessive uncertainty), and maysir (a specific form of speculation, very much akin to gambling) under Islamic law (Ayub, 2007; Olorgun & Ottam, 2021; Omri, 2022; Wadood, 2025). These concerns involve important ethical and religious considerations by pious Muslim consumers and restrict the use of conventional insurance in countries where Islamic values play an essential role in financial decisions. Takaful, or Islamic insurance, is based on the principles of Islamic jurisprudence, which include the principles of cooperation (ta'awun), social solidarity and collective responsibility. These values are exercised through main principles like Tabarru, a voluntary contribution by participants to the common good; and Mudarabah, where the profit is shared between policyholders and operator of the fund (Kamla & Alsoufi, 2015; Adams & Nkoro, 2021; Billah, 2003; Al Rasasi, 2025). Unlike conventional insurance, which operates on the principle of risk transfer from the insurer to the insured, Takaful is based on the principle of risk sharing. The main characteristic of insurance is that policyholders put money into a pool, and all claims are paid out from this collective pool, where the participants carry each other's risks, for example, if loss occurs (El Qorchi, 2005; Marc et al., 2021; Khalid et al., 2025).

Takaful operations are assessed by dedicated Shariah advisory boards to guarantee compatibility with Islamic law and ethics. These boards will oversee financial transactions and investment decisions to ensure that they do not go beyond the limits established by Islamic law. Thus, investment is limited to Shariah-compliant assets, strictly excluding interestbearing instruments, excessive uncertainty, and grabeen. Investment is thus strictly confined to Shariah-compliant assets, excluding, among other reasons, interest-bearing instruments, excessive interest, and uncertainty along with speculation (Billah, 2003). In this regard, Takaful is not just seen as a religious replacement for conventional insurance but a holistic financial model that combines ethics, social responsibility, and financial risk management with the scope of Islamic economic goals (Dusuki and Abdullah, 2007; Iqbal and Nasir, 2018; Abdur-Rauf and Raimi, 2024; Iqbal et al., 2025). Furthermore, Takaful development has gained substantial attention in recent years, particularly in Muslim-majority countries, helping to anticipate the growth and institutionalization of Takaful players worldwide. The thought expansion has been aided by the facilitating regulatory development, then the development of internationally set up ethical of ethical standard-setting bodies such as the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) and the Islamic Financial Services Board (IFSB) (IFSB, 2015). These organizations have same importance regarding the bringing the principles of governance, audit, and risk management practices applicable to Islamic financial institutions. But even with such an opening, one of the big bottlenecks for the multinational scalability of Takaful remains in the form of the absence of the uniformization of the tools of Shariah between jurisdictions. The industry is still fragmented due to competing legal dispensations, regulatory demands and religious interpretations. These variations are not only jeopardizing the cause of standardization across national frontiers but also jeopardizing the functioning and comparability of the Takaful systems all around the world. Resolving these disparities needs improved cooperation amongst academics, authorities, and industry players to Stanford convergence trends of Shariah standards and enforce regulatory harmonization worldwide (Archer et al. 2009, Ustaoglu and Yildiz 2023; Aziz et al., 2025).

This study is a general comparison between the conventional and the Islamic insurance model, particularly the degree of application of the Islamic insurance in Malaysian Malaysian Insurance Association in the study of insurance in Malaysia. It continually relates the interactions between the governance structures, financial disclosure, consumer protection, and compliance mechanisms connected with ethical finance principles and the interests of the stakeholders, respectively the period 2016 through 2024. Using mixed-methodology combining qualitative thematic and quantitative discovery grading disclosure, the paper assesses the level of power, ethical orientation, and transparency of each and every insurance model. By presenting empirical proofs from a context where both conventional and Islamic insurance are not only subject to joint regulatory supervision but their rooting philosophy also differs, this research fills a very nice gap in the literature.

2. LITERATURE REVIEW

Insurance as a financial management institution has developed under complex systems of economic, legal and cultural interactions in the societies of all the countries of the world. Within the concept of evolution, two loosely connected strains have grown in the respectively incompatible strains of the two models of insurance: Conventional Insurance, founded on the values of Western legal and financial system; Islamic, Takaful, of an ethical and jurisprudential arm of the Shariah (Iqbal & Lewis, 2009; Khan et al., 2025). These models not only differ in their way of operation, but they also diverge in their underlying ideology especially risk, profit, and social responsibility. Khan and Bhatti (2008) tried to make a comparison between the two approaches by discussing the structural differences between the conventional insurance attempt and Takaful and by putting forward a comparative analysis of the approach to risk management and their moral validity. While the idea of taking insurance systems stands on sharing risks and contractual assuredness however Takaful is based on sharing risks and sincere unity. There are further factors to consider, but in essence, the

authors posit that the underlying differences would not only be restricted to differences in legal frameworks themselves but also transcend such restrictions, identifying these differences as being more general socioeconomic ones.

The demand for Takaful has seen a huge increase in recent years due to the growing awareness and preference for using financial products that follow Islamic ethical standards by consumers. According to Ernst & Young (2016), the expansion of the sector is chiefly the growing population of Muslim consumers in search of Shariah-compliant alternatives to mainstream financial products. Billah (2003) further contends that Takaful has the potential to address the problems of incipient income inequality and social exclusion among Muslims in Muslim society by ensuring financial inclusion through the concept of cooperative models of risk pooling and mutual assistance. This comparative discourse is informed by developments as well as theoretical constructions. Conventional insurance gained a systemized methodology to address the lack of economic securities to people as well as institutions by mechanisms, for example, premium collection, contracts, as well as actuarial calculations to risk (Outreville, 2013). Over the course of history, the sector was progressively determined, worldwide previously, through multilateral regulatory organizations, for example, the International Association of Insurance Supervisors (IAIS). These organizations, along with national regulatory authorities, have put in place surprisingly complex frameworks that are designed to ensure the efficiency of the market, the protection of the consumer, and the stability of the system as a whole (IAIS, 2018).

The constant development of economic systems, legal frameworks, and consumer demands has led to the additional sophistication and global integration of the conventional insurance industry. Nevertheless, the co-existence of Takaful and conventional models represents a more general trend towards financial services pluralism, where ethical, religious, and cultural factors play an increasingly significant role in determining consumer behavior and market dynamics. In contrast to conventional insurance, Takaful - or Islamic insurance - emerged as a faith-based alternative based on the fundamental Islamic principles of cooperation ("ta'awun"), collective and social solidarity. The historical basis of Takaful can be traced to the early makharan of Arab merchants who, during joint trading expeditions, voluntarily contributed towards communal funds for compensation of losses incurred by any other member of the group (Billah, 2003). This informal practice of sharing risk laid the foundation for the formal development of Takaful in the last parts of the last century, especially in Muslim-majority countries like the Middle East and Southeast Asia. Regulatory frameworks in these regions were implemented for institutionalizing the Shariah-compliant insurance models, which ensured meeting the requirements of Islamic jurisprudence while aiding the growth of ethical financial services (Archer et al., 2009).

Fundamentally, Takaful does not follow the normal model but instead substitutes the risk-sharing perspective against the risk-transfer model. Instead of transferring the liability to an insurance company in exchange of the premiums paid by the insurer party, in Takaful agreement the members invest their money into a fund pool so that they can share any losses suffered by a specific member. This model is not only a technical adjustment, but is a great change in the pillars of ethics, as well as operations, whereby practices in insurance companies have been coordinated with Islamic moral values (Obaidullah, 2005; Khan et al., 2025). The beauty of Takaful is that it has not only become commercialized but has also become more revered as Shariah-compliant financial services for the Muslim majority societies. On the other hand, the traditional insurance is commercial insurance, under which the insurers accept the risk of an individual in exchange for an insurance premium that the policyholder has to pay. In most cases, but not successfully, the risk management system implemented involves practices incompatible with Islamic behavior. More specifically, the traditional contracts typically involve some form of uncertainty (gharar), uncertainty speculation (maysir), and an investment that yields interest (riba), which are all prohibited in Islamic law (Ayub, 2007; Qaisrani et al., 2025; Nasir et al., 2025). These moral concerns have resulted in the growth of Takaful as an ethical solution to such cases, not only that eliminate the disallowed points but also embody the Islamic ethics regarding economics and surely revolve around justice, fairness, and community welfare. Instead of a concordance, Takaful as a moral virtue includes an element of transparency, accountability, and ethical conduct toward financial matters in its structure. Contributions are referred to as Tabarru, and are made to help fellow colleagues instead of benefit the individual. The Takaful investors make investments, the investments are screened strictly under Shariah Law. Therefore, no items of interest-bearing and high risky assets are taken into account. As explained by Dusuki and Abdullah (2007), Takaful is an ethical, social, and financially just system because of how it allows clients to share the risk and the reward in the framework.

El-Gamal (2006) explains that Takaful is the social responsible mechanism transcending the aspects of religious commitment and facilitation to the broader tasks of ethical investing. It allows Muslim consumers to reach the insurance services without having to compromise their religious beliefs and facilitates a fair distribution of financial resources. As such, Takaful is not only closing an important gap in the Islamic financial markets but can also serve as a paradigm for socially responsible and inclusive financial innovation. The governance structures, along with operational frameworks of conventional insurance and Islamic insurance, are imposed on the regulations, both by the philosophy of regulations and those designed by the institutional framework of regulations. In most jurisdictions, conventional insurance is under the authority of the national financial authorities (as opposed to the autonomous financial authorities responsible for emoney), which have market integrity, consumer protection, and financial transparency as their primary objective. Regulatory mechanisms usually include rigid requirements regarding solvency, stringent regulations, and mechanisms for reporting to prevent systemic risk and unethical demands (Rejda & McNamara, 2017; Olorogun & Othman, 2021). These standards are intended to preserve the public trust, to exercise fairness towards policyholders, and to preserve the long-term stability of the insurance industry.

By comparison, Islamic Insurance (also known as Takaful) is not a prerequisite of financial stability, rather Islamic Insurance is embedded both theoretically and currently in the government systems, and it adheres to strict rules strict requirements of the Shariah. Unlike conventional insurance, which deals through a risk-transfer-for-profit system, Takaful

is grounded in the cooperative risk sharing but the participants under such system contribute to a common fund to provide mutual aid for each other's activities in case of loss occurred (El-Gamal, 2006). Takaful supervision is not only possible from financial regulators but special Shariah supervision boards. Finally, there are also a number of transnational institutions such as the accounting and auditing bodies for Islamic financial institutions (AAO explication) or the Islamic Financial Services Board (IFSB) which are important for providing regulations for standards, investment basis and profit distribution and transparency (Archer et al. 2009).

Despite such institutional assistance, the regulatory environment for Takaful is fragmented because different jurisdictions have conflicting definitions regarding the interpretation of Shariah. As an example, one institutionalized centralized Shariah Advisory Council under Bank Negara Malaysia (2003) is an example of its unsuccessful in guaranteeing the interpretation of regulation uniformity in Malaysia. Contrary to that, other jurisdictions trust decentralized or institution-specific Shariah Boards, whose practices have shown drastic differences in the operational practices (Akram & Rahman, 2022). This multiplicity in jurisprudence poses the challenge of cross-border co-operation and conflicts with the aim to satisfy the demand for standardized Takaful products, respectively, causing a lack of investor confidence in the coherence of Takaful system (Dusuki & Abdullah, 2007). Considering today's ever-limited reliance and global acceptability of Islamic finance, there is an urgent need for improved international coordination and harmonization in regulation to foster credibility, scale, and long-term sustainability of the Takaful industry.

For conventional insurance, economic development and associated rising incomes are a basic driver. As a general rule, the higher one's wealth, the greater the demand for risk mitigation tools. Additionally, the better ability for regulation improves institutional trust and allows for the involvement of consumers and greater penetration in markets due to advanced technology, progressively creating more technology platforms, improving data analytics, and artificial intelligence for technological competence in product innovation, as well as gaining operational efficiency (Outreville, 2013; Swiss Re Institute, 2020; OECD, 2021). These developments have enhanced the reach and sophistication of the conventional insurance industry on a global scale to a significant extent. Meanwhile, Takaful has seen a significant growth in numbers, especially in jurisdictions where Islamic finance has more mature ecosystems. The sector's growth is mostly attributed to the continuous and growing consumer demand for Shariah-compliant financial services in the Muslim majority countries (El Qorchi, 2005). Governmental policy support, such as regulatory incentives coupled with recognition of Islamic financial protocols, has been among the factors that have further boosted the adoption of Takaful (IFSB, 2015). Furthermore, the post-global financial crisis environment has seen a revolution in the preferences of consumers and investors towards ethical and socially impact financial products. This shift has made Takaful not only a religious alternative but also an acceptable model towards a broader goal of financial inclusion, risk equity, and the ethics of governance (Dusuki, 2008; Archer et al., 2009).

Industry leaders in the Takaful sector have always insisted that the model is not just a mere financial product but has an ethic of behavior and sharing of risks that is based on Islamic jurisprudence. Instead of making profits on people's uncertainty, or investments that yield interest on money, Takaful companies are focused on mutual benefits, knowledge transparency, and investments following Shariah. These values continue to impose the identity of this as an acceptable, religiously and socially responsible sector of the modern financial ecosystem. Comparative studies taking into account performance of conventional and Islamic insurance companies have frequently been done in terms of dimensions of the profitabilities, resilience and governance along with customer preferences. For example, Ismail et al. (1999) have found that the compared to conventional insurance customers, the participants in Takaful systemsactor valued the importance of both ethics and religious compliance, though conventional customers were more likely to value the need for cost effectiveness and fast transaction Similarly, Jaffer and Ismail (2010) revealed stronger solvency ratios of Takaful institutions towards financial downturns suggesting that they are more robust and resilient. However, these institutions are frequently lagging behind their conventional counterparts in terms of digital infrastructure and innovation and product diversification.

Karim et al. (2010) noted that the conventional insurers have tends to have higher profitability as a result of the fact that the insurers have access to a diversified investment portfolio as well as a range of financial instruments. In contrast, the operators in the Takaful have a policy of ethically conservative investments and avoid interest-bearing and speculative investments. While and this provides for limited exposure to volatile markets and helps to provide for long-term financial stability it can limit profitability during times of economic growth (El-Gamal, 2006). Dusuki and Abdullah (2007) underscore the significance of customer trust, particularly among Muslim majority societies, in driving the escalation of customer demand for Takaful, especially among the segments of the society who are in need of the provision of Shariah-compliant and socially responsible financial solutions. But the Takaful field still suffers from abundance of institutional and structural handicaps preventing it from competing to the best of its full potential. Archer et al (2009) identify the main barriers that are under-development of Shariah governance mechanisms and limited availability of re-Takaful (Islamic reinsurance) arrangements. In order to make the Takaful industry more viable, some strategic changes need to take place; amongst the most important ones are the need for strategic reformation in regulatory oversight, administration, governance transparency, and innovations in financial products. Corporate governance, in particular, plays an important role in ensuring sweet accountability and effectiveness of operations for both insurance models.

Conventional insurers anyway have the benefit of advantages that may result from well-established governance formations sanctioned by the national regulatory bodies at the applicable country level. These structures are made to safeguard the interests of policyholders, provide transparency to the business and make the risk management practices match the international standards (Rejda & McNamara, 2017). This stability in the regulation is an attribute of the efficiency of the action and consumer confidence. On the other hand, Takaful institutions are under a structure of

governing twice over. In addition to the usual regulation requirements, they are undergoing oversight by the Shariah supervisory boards for regulations and practice of investment, designing of contracts, and distribution of surplus to ensure compliance with Shariah (Archer et al., 2009). Although this mode of layered governance can ensure a greater level of ethical integrity, there lies the potential burden of ethical procedure issues, which leads to delays in decision-making procedures and reduces the flexibility of operation (El-Gamal 2006).

According to Rahman and Bukair (2015), the strengthening of internal governance and increasing transparency may indicate a significant improvement in the consumer confidence level towards the Takaful products. Recognizing this, there are a number of regulatory initiatives that have been put in place across the Gulf Cooperation Council (GCC) region in their respective bid for harmonization in governing standards. Policymakers and organisations, such as National Regulatory Institutions (NRIs) and the Islamic Development Bank (IDB), have undergone changes in their policies to ensure that the practices of Haksul are stabilised and being standardized (Al-Amri and Hossain 2020). Such programs aim at boosting competitiveness on a global scale in terms of either diffused jurisdictional and governmental designs and taxation by countries. Despite all these, there are several structural issues that Takaful institutions are still faced with. The most is in the form of high administrative costs since this is due to the double compliance requirements commanding a double standard of financial and Shariah governance. These requirements usually consist of very routine auditing, hiring of Islamic finance professionals, and an ongoing monitoring process, which adds to the costs of operating. As indicated by Ismail et al. (2011), the costs can in turn lead to delayed product development and poor price competitiveness of dispensations in Takaful and noncompetitiveness compared to conventional insurance.

Dusuki and Abozaid (2007) also lack space when highlighting that cost of adherence to Shariah can be accompanied through the transferal of the cost onto the consumers. As part of that, Takaful products are relatively expensive (McKim, 2006) which has the market penetration-effect. Besides, low public awareness seems to be a great constraint of expansion. Even in Muslim-majority countries, there are still people who are not aware of the unique characteristics and ethical advantages of Takaful. As a result, they do not have significant demand (Shafii and Salleh, 2010). Adding to this difficulty is the fact that there can be no standardization in providing the Shariah. Lack of a standardized interpretation of Shariah leads to contradictions in the products provided and fragmented regulatory environments. These discrepancies make cross-border standardization failed to be realized in the achievement of the goal of harmonization of Takaful discoveries. Additionally the traditional insurance falls prey to global harmonized structures of regulations and properly adjusted financial infrastructures which conducive to globalized activities of multinational companies and transaction across jurisdictions (Khan and Bhatti, 2008). Although insurance models offer a very similar service - to reduce the risk that the community is exposed to - the way how these models are governed, regulated and structured is very different. With the increase of interest in ethical finance, as well as inclusive economic development across the world, the future of Takaful is bright. Addressing such systemic limits is sure to be crucial to establishing Takaful as a viable, competitive and socially responsible component of the world financial system.

3. THEORETICAL MODEL

This study is supported by the stakeholder theory and legitimacy theory, which provides an excellent theoretical basis for understanding the importance of the insurance institutions' ethical disclosure and corporate transparency. Stakeholder theory as forwarded by Freeman (1984) holds that the firms have not only accountability to the shareholders but to the different stakeholders, especially to the consumers, the regulatory bodies, the employees, and the community in general. Legitimacy theory has provided a complement to this perspective as businesses need to keep their ongoing activities in continuous alignment with popular values and norms of the societal structure so that it can gain social legitimacy and sustain it (Suchman, 1995). Ethical reporting in insurance sector especially Takaful sector as it is religiously and ethically compliant is a robust mechanism developed for community purpose which ensures public trust in the insurer and insurer's legitimacy among the product's Shariah aware consumers.

Analyzing these theoretical insights towards practical implications and in order to establish a basis for ranking choices, the work presents the Comparative Ethics Index (CEI), the practical application of which should allow for quantifying and relative measurement of the comparative moral force of Islamic insurance models versus traditional ones. Based on the structure of the Sustainability Reporting Index, CEI evaluates ethical aspects in five pillars - governance disclosure, financial reporting quality, disclosure of operational model, customer protection, and Shariah adherence (which is relevant to Takaful business entities). This integrated invariant metric system corresponds with the principles of the contemporary corporate reporting, such as the idea of the culture of materiality and long-term sustainability (Eccles & Krzus, 2010). Each of the components of the CEI is theoretically based. Governance transparency (Gov) is informed by agency theory, principally to address the issue of information asymmetry and structures of oversight between principals and agents (Fama & Jensen, 1983). Financial disclosure (Fin) reflects the accountability and stewardship of the firm, being consistent with the tenets of the stewardship theory, which emphasizes the long-term responsibility and prudence in the financial representation of primary concern of financial disclosure (Davis et al., 1997). Operational model disclosure (Oper) helps express clarity about how insurance products are to function, an important aspect for understanding the difference between the conventional standard of insurance and the Islamic one. Customer protection (Cons) is the expression of ethical protection of the welfare of stakeholders, in accordance with the framework of corporate social responsibility suggested by Carroll (1991), according to which ethical considerations stand above legalistic considerations. Lastly, Shariah compliance (Shariah), which is only applicable for Takaful operators, relies on institutional theory and Islamic ethical philosophy and highlights the religious accountability of the financial actors within the ethical framework of the Islamic religion (Kamla & Haque, 2019).

Recent empirical literature supports the need for ethical disclosures in increasing legitimacy and stakeholder confidence in the financial sector. For example, Haniffa and Hudaib (2007) stressed that Shariah-compliant disclosure mechanisms can make an important contribution to increase stakeholder trust in a firm and also towards the long-run increase in the shareholders' value. Similarly, Maali et al. (2006) observed that increased transparency in relation to governance and customer protection has a positive impact on the legitimacy and investor confidence of the firm, regardless of whether it was an Islamic or conventional insurer. The model of our study becomes:

$$CEI_{it} = \alpha + \beta_1(Gov_{it}) + \beta_2(Fin_{it}) + \beta_3(Oper_{it}) + \beta_4(Cons_{it}) + \beta_5(Shariah_{it}) + \epsilon$$

Where:

Gov = Governance transparency score, Fin = Financial reporting score, Oper = Operational model disclosure, Cons = Customer protection practices, Shariah = Compliance (only applicable to Takaful)

3.1. POPULATION AND SAMPLE

This study focuses on the insurance companies operating in the Malaysian insurance environment; it embraces traditional insurance companies as well as companies that operate Islamic insurance business, known as Takaful operators. As of 2024, the insurance industry in Malaysia has over forty licensed insurers that consist of general insurance companies, life insurance companies, and family Takaful insurance companies. The nation is the ideal context here for this comparative investigation because of its dual financial system, which has both the traditional and Islamic financial systems operating in parallel with regulatory supervision.

To ensure complete and adequate sectoral coverage the sampling strategy was designed to reflect the institutional diversity along several dimensions (size: from a small business to a [GoS] to multi-national companies, etc.; business model: in terms of the end-users of installed renewable energy and business practices: from a Financial Service Provider to a renewable energy company; in terms of governance practices: from an international lesson program of the UN Environment program and the IMO, to contributions of the entire ZnO20 sector). A purposive sampling approach was used so that firm samples were deliberately selected that exhibited meaningful variation on both of the insurance models. This technique makes it possible to have a specific comparison of disclosure behaviors and ethical governance practices, especially in terms of capturing heterogeneity in terms of financial structures, stakeholder orientations, and client demographics (Etikan et al., 2016).

The final sample was made up of 20 insurance firms, specifically conventional insurers and Takaful providers, with each having 10 firms in the selection. Within each of the groups, firms were given further classification depending on operational dimension. In the case of this research, five life insurance firms and five general insurance firms were classified between conventional and Islamic insurance segments. The sample design makes it easier to conduct a structured study of varying levels of governance transparency, ethical disclosure practices, and Shariah compliance between the conventional and Islamic insurers. A detailed breakdown of the selected companies is in the table in Table 1.

Table 1: Distribution of Selected Firms by Type and Segment

- 110-1 - 1 - 10-10 10-10 10 10 10 10 10 10 10 10 10 10 10 10 1			
Segment	Conventional	Takaful	Total
Life Insurance	5	5	10
General Insurance	5	5	10
Total	10	10	20

This study is based on secondary data obtained from publicly available sources, including annual reports, participant Takaful reports, regulatory filings, and corporate websites submitted to the Securities Commission of Malaysia. These sources were utilized to assess and compare the reporting practices, ethical constructs, and governance mechanisms of conventional and Islamic (Takaful) insurance models. For conventional insurance firms, the primary data sources included:

- Annual financial reports (2016–2024)
- Directors' reports
- Corporate governance disclosures

For Takaful operators, the data comprised:

- Participant Takaful Fund (PTF) reports
- Operator Fund (OPF) disclosures
- Shariah compliance reviews
- Board and Shariah committee reports

All data were collected for a uniform reporting window spanning from 2016 to 2024. This time frame was selected to encompass distinct operational phases—pre-COVID-19 (pre-business as usual), the COVID-19 disruption period, and the subsequent post-pandemic recovery phase. The consistency of this temporal scope allowed for a robust longitudinal analysis of insurance reporting behaviors under varying market conditions and volatility.

4. RESULTS AND DISCUSSION

The governance comparison presented in Table 2 highlights key differences and similarities in disclosure practices between conventional insurance firms and Takaful (Islamic insurance) operators in Malaysia over the period 2016 to 2024. This comparison is made based on an approach which uses publicly accessible documents, e.g. annual reports, regulatory filings, corporate Web sites and attempts to analyse based on an evaluation of the ethical, structural and procedural organs of government across the two models.

The results are both models of the insurance model; they have full comply with the disclosure of the board's composition claims have had full 100% reporting rate of board. This reflects an agreed stance by corporate leaders towards openness in the corporate governance framework structure and is likely impacted by standardised listing requirements and regulatory expectations to all financial institutions that fall under the jurisdiction of Securities Commission of Malaysia. The consistency in this area implies that board-level governance is now a set of boxes that insurance businesses can check in order to demonstrate compliance with the industry standard, irrespective of the model.

Similarly, conventional and Takaful firms equally demonstrate their adherence to reporting on the internal audit framework (90% disclosure rates). This fact, which the vast majority of us adhere to, demonstrates how important internal controls and risk management are to the integrity of an institution. Given the growing emphasis on supervising risk in the financial sector, it is not surprising that this is consistent, and it satisfies global expectations of governance, such as those reflected in the Principles of Corporate Governance (OECD, 2015) of the Organization for Economic Cooperation and Development (OECD).

A notable divergence emerges in the disclosure of conflicts of interest, where Takaful operators report at a higher rate (90%) compared to conventional insurers (70%). This suggests a stronger emphasis on ethical transparency in Islamic insurance models, possibly reflecting the foundational role of Shariah principles, which explicitly emphasize fairness, mutual benefit, and the avoidance of harm or unjust enrichment. Enhanced attention to conflict of interest disclosures in Takaful may also be shaped by dual governance structures, particularly the oversight of Shariah advisory boards, which are designed to uphold Islamic ethical norms and ensure compliance with Shariah jurisprudence (Dusuki & Abdullah, 2007).

Where the two models diverge most significantly is in Shariah-specific disclosures, which are naturally absent in the conventional model. Takaful firms report 80% compliance with disclosure of Shariah board profiles, and 60% disclosure of annual Shariah rulings. These governance mechanisms are unique to Islamic financial institutions and are designed to promote accountability, transparency, and religious legitimacy. The inclusion of these elements supports prior findings that Shariah boards serve both as ethical overseers and as strategic advisory entities in Islamic finance (Hassan & Lewis, 2007). However, the 60% disclosure rate for annual rulings suggests some inconsistency in how firms communicate Shariah decisions to stakeholders—potentially due to a lack of standardized reporting frameworks or variations in board practices.

The average governance score is slightly higher for Takaful operators (82%) compared to conventional insurers (78%), indicating that Islamic insurance firms have made marginally greater strides in comprehensive governance disclosures. While the difference is not drastic, it suggests that the dual governance structure in Takaful—combining conventional corporate governance with Shariah compliance—may drive a more layered and transparent disclosure culture, particularly in ethical domains. This finding supports earlier literature suggesting that Islamic finance institutions may be more inclined toward disclosure in areas with ethical implications, due to their religious foundations and stakeholder-oriented principles (Chapra & Ahmed, 2002).

Table 2: Governance Disclosure Comparison (2016–2024)

Table 2: Governance Disclosure Comparison (2010–2024)				
Indicator	Conventional (%)	Takaful (%)		
Board Composition	100	100		
Internal Audit Framework	90	90		
Conflict of Interest Disclosure	70	90		
Shariah Board Profiles	N/A	80		
Shariah Rulings (Annual)	N/A	60		
Average Governance Score	78%	82%		

Table 3 shows the findings of Bruce Identification Analysis (BIA) on Insurance Disclosure Ratings (IDS) of conventional and Takaful insurance companies using 5 variables of disclosure, including governance dimension, operational model, financial disclosure, consumer ethics, and Shariah (for Takaful only and using an Islamic perspective). These scores were determined by the level and quality of public disclosure and give valuable information on how each model emphasizes differing aspects of transparency and gives differing levels of accountability to the stakeholders. Takaful operators appeared to have the superiority (82%) over the conventional operators (78%) in the first governance dimension. This echoes findings from Table 2, reinforcing the idea that Takaful insurers tend to emphasize not only conventional governance practices—such as board oversight and audit systems—but also ethical and religious governance via their Shariah supervisory boards. This dual-layered structure likely encourages broader and more robust disclosure in governance matters (Hassan & Lewis, 2007).

The operational model dimension shows a more significant difference: 88% for Takaful versus 75% for conventional insurers. This suggests that Takaful firms provide more detailed disclosures on how their business models function, especially regarding the structure and separation between the Participant Takaful Fund and Operator Fund. The higher transparency here is likely driven by the need to explain Takaful's risk-sharing model, which differs fundamentally from conventional risk-transfer mechanisms. As such, Takaful firms often detail their operational procedures to assure stakeholders of Shariah compliance and alignment with cooperative principles (Chapra & Ahmed, 2002).

Conversely, financial transparency is the one area where conventional insurers outperform Takaful providers, scoring 86% compared to 79%. This finding suggests that conventional insurers have a more established tradition of financial disclosure—possibly due to longer histories, stricter listing requirements, or greater pressure from institutional investors. Financial transparency in conventional insurance typically includes detailed income statements, investment performance, risk disclosures, and solvency positions, all of which are critical for shareholders and regulators (OECD, 2015). Takaful operators, while improving, may still be developing standardized financial reporting frameworks specific to their dual-fund structure, which can sometimes create inconsistencies or disclosure gaps.

The consumer ethics dimension reveals a notable strength on the part of Takaful insurers, who score 81% compared to 65% for conventional firms. This difference highlights the ethical foundation of Islamic finance, which prioritizes fairness, cooperation, and protection from harm (darar). Takaful companies often report more comprehensively on issues such as fair treatment of participants, transparency in contributions and surplus distribution, and avoidance of exploitative contract terms. These disclosures reflect Takaful's stakeholder-oriented model and align with Islamic ethical values (Dusuki & Abdullah, 2007).

Finally, the Shariah compliance dimension is exclusive to Takaful, with a score of 74%. This score reflects the degree to which Takaful operators disclose Shariah board activities, fatwas, rulings, and compliance assessments. Although positive, the score also suggests room for improvement. Greater consistency and standardization in disclosing Shariah board operations and annual rulings would enhance credibility and stakeholder confidence. As Islamic finance expands, there is increasing demand for clear and regular reporting on religious compliance to avoid the perception of "Shariah-washing" (Kamla & Haque, 2019). The average IDS score of all the dimensions of Takaful is more than that of conventional insurance, with a large discrepancy of 80.8% vs. 76, respectively. While the gap may seem insignificant, it is significant in light of the extra reporting burden to the operators of Takafuls due to the existence of their dual compliance (i.e., regulatory and religious) obligations. The A+ scale also indicates that Islamic insurers are going beyond the basic disclosure requirements and are making efforts to be unambiguously ethical and religiously transparent.

Table 3: Insurance Disclosure Score (IDS) by Model Type

Dimension	Conventional (%)	Takaful (%)
Governance	78	82
Operational Model	75	88
Financial Transparency	86	79
Consumer Ethics	65	81
Shariah Compliance	N/A	74
Average IDS	76	80.8

5. CONCLUSION

This research is intended to review the relative performance of traditional insurance and Takaful providers of Malaysia by emphasizing commercial governance, compliance, disclosure, and transparency, and ethical disclosure. Both these were found to be compliant with minimum regulatory standards, such as the makeup of boards and audit systems, a joint effect of the experience in nationalization. However, there were clear differences in the transparency and accountability operationalization in both models. Takaful operators had better scores in the aspects related to ethical disclosure and consumer protection than the conventional insurers, but the conventional insurers secured a stronghold when it comes to the financial reporting in terms of both the depth and consistency of presentation. The results showed that Takaful companies perform better regarding governance-related disclosures, especially in terms of disclosures of conflict of interest and integration of Shariah regime through board composition and interpositions. The takaful market offers features of both systems, reflecting its two broad designs of combining religious responsibility with financial regulation and ensuring that all operations conform to risk-bearing sharing concepts and social responsibility. Takaful operators also performed well on the transparency of their operational models as well as the ethics of consumers, due to the nomenclature of double-fund schemes in the market and the importance of equity to the system and membership. Conventional insurers, on the other hand, demonstrated a more deeply established culture of financial transparency: this was reflected in a long history, established frameworks, and reporting requirements of the investor stand. In particular, they focused their attention more narrowly on the shareholder and the regulatory interests with comparatively less attention to the issues relating to participant welfare and ethical consideration. The analysis also proved the structural issues for both systems. Takaful operators suffer in terms of compliance costs, as double control is required; there is also a lack of comparability between firms, due to the variation of rulings in Shariah. The performance of traditional insurers in terms of consumer ethics is lower because this extracted risk transfer agreement is a strong commercialization product. Finding answers to these challenges will be of key importance to ensure long-term competitiveness and trust from stakeholders. The

comparison evidence suggests that whilst both models have the basic economic purpose in mind of risk management, they are two ways of thinking about governance and transparency. While provision of information relating to conventional insurance is dominant in finance reporting and disclosure culture, Takaful provides for ethical, social, and religious disclosure accountability. These persons and their families are involved in the dual economy of Malaysia, contributing greater macroeconomic security of Malaysia. Perhaps we can see this trend with the global movement towards moral pluralism. Emphasizing the harmonization of Shariah, improving disclosures that favor the consumers, and Digital are the key actions forward in creating a more transparent, inclusive, and resilient insurance industry.

REFERENCES

- Abdur-Rauf, I. A., & Raimi, L. (2024). A conceptual discourse on Islamic finance investment modes for established and emerging entrepreneurs: Tripartite implications. *Journal of Business and Economic Options*, 7(2), 1-9.
- Adams, S., & Nkoro, E. (2021). Optimizing Yam Production in Rivers State: Insights from a Cobb-Douglas Model Analysis. *Journal of Business and Economic Options*, 4(2), 1-6.
- Akram, M., & Rahman, A. R. A. (2022). The role of Shariah governance in harmonizing Islamic finance: Case study from Malaysia. *Journal of Islamic Accounting and Business Research*, 13(2), 287–302.
- Al Rasasi, F. (2025). Examining the Nonlinear Dynamics of Trade Openness and Environmental Quality in Organization of Islamic Cooperation Countries. *Journal of Energy and Environmental Policy Options*, 8(1), 14-23.
- Al-Amri, K., & Hossain, M. (2020). Takaful governance and operational performance in GCC countries: Evidence from panel data. *Journal of Islamic Accounting and Business Research*, 11(9), 1803–1817.
- Al-Darwish, A., Hafeman, M., Impavido, G., Kemp, M., & O'Malley, P. (2011). Saudi Arabia: Financial sector stability assessment. *International Monetary Fund Country Report*, 11(292), 1–43.
- Ali, A., Ul Hassan, M., & Al-Masri, R. (2025). Comparative Analysis of Islamic and Conventional Financing on Firm Profitability: Evidence from Pakistan's Manufacturing Sector. *Pakistan Journal of Social Science Review*, 4(2), 305–332.
- Archer, S., Abdel Karim, R. A. A., & Nienhaus, V. (2009). Takaful: Realities and challenges. *Islamic Finance: Instruments and Markets*, *I*(1), 55–72.
- Ashraf, K., Ali, A., & Alam, M. (2025). Strategic Transformation and Performance Drivers in Islamic Banking: Evidence from Pakistan. *Policy Journal of Social Science Review*, 3(8), 423–438.
- Audi, M., Al Ani, M., & AlMomani, M. A. (2021). Determinants of financial performance in the insurance sector: Conventional versus Takaful companies. *The Journal of Asian Finance, Economics and Business*, 8(3), 299–308. Ayub, M. (2007). *Understanding Islamic finance*. John Wiley & Sons.
- Aziz, S. R., Ahmad, K., & Ali, A. (2025). Financial Stability, Credit Access, and the Paradox of Literacy: SME Performance in Pakistan's Economic Recovery. *Journal of Social Signs Review*, 3(05), 364–382.
- Billah, M. M. (2003). Islamic insurance: Concept and models. Arab Law Quarterly, 18(1), 25-51.
- Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. *Business Horizons*, 34(4), 39–48.
- Chapra, M. U., & Ahmed, H. (2002). Corporate governance in Islamic financial institutions. Islamic Research and Training Institute.
- Davis, J. H., Schoorman, F. D., & Donaldson, L. (1997). Toward a stewardship theory of management. *Academy of Management Review*, 22(1), 20–47.
- Dusuki, A. W. (2008). Understanding the objectives of Islamic banking: A survey of stakeholders' perspectives. *International Journal of Islamic and Middle Eastern Finance and Management, 1*(2), 132–148.
- Dusuki, A. W., & Abdullah, N. I. (2007). Maqasid al-Shari`ah, maslahah, and corporate social responsibility. *The American Journal of Islamic Social Sciences*, 24(1), 25–45.
- Dusuki, A. W., & Abozaid, A. (2007). A critical appraisal of the challenges of realizing maqasid al-Shari'ah in Islamic banking and finance. *International Journal of Economics, Management and Accounting*, 15(2), 143–165.
- Eccles, R. G., & Krzus, M. P. (2010). One report: Integrated reporting for a sustainable strategy. Wiley.
- El Qorchi, M. (2005). Islamic finance gears up. Finance & Development, 42(4), 46-50.
- El-Gamal, M. A. (2006). Islamic finance: Law, economics, and practice. Cambridge University Press.
- Ernst & Young. (2016). Global Takaful insights: Shariah-compliant growth in the insurance market. EY Global Financial Services.
- Ernst & Young. (2021). Global insurance outlook 2021. EY Global.
- Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1–4.
- Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *Journal of Law and Economics*, 26(2), 301–325.
- Freeman, R. E. (1984). Strategic management: A stakeholder approach. Pitman.
- Haniffa, R., & Hudaib, M. (2007). Exploring the ethical identity of Islamic banks via communication in annual reports. *Journal of Business Ethics*, 76(1), 97–116.
- Hassan, M. K., & Lewis, M. K. (2007). Handbook of Islamic banking. Edward Elgar Publishing.
- IAIS. (2018). *Insurance core principles, standards, guidance and assessment methodology*. International Association of Insurance Supervisors.

- IFSB. (2015). Guiding principles for governance for Takaful (Islamic insurance) undertakings. Islamic Financial Services Board.
- Iqbal, H. M. A., Ali, A., & Audi, M. (2025). Balancing Compliance and Transparency: A Comparative Analysis of Takaful and Conventional Insurance in Pakistan. *Journal of Social Signs Review*, 3(03), 475-506.
- Iqbal, M., & Lewis, M. K. (2009). An Islamic perspective on governance. Edward Elgar Publishing.
- Iqbal, T., & Nasir, S. (2018). Integrating national professional standards with Islamic teachings: A path to educational excellence in Pakistan. *Journal of Policy Options*, 1(4), 131-140.
- Ismail, H., & Saeed, A. (2019). Islamic banking and finance in Pakistan: Growth trends, outlook, and strategic imperatives. *Journal of Policy Options*, 2(4), 169-182.
- Jaffer, S., & Ismail, A. (2010). Takaful: Growing opportunities in the global insurance market. BMB Islamic.
- Kamla, R., & Alsoufi, A. (2015). Critical Muslim intellectuals' thought: Possibilities for Islamic accounting. *Critical Perspectives on Accounting*, 31, 64–77.
- Kamla, R., & Haque, F. (2019). Islamic accounting, neo-imperialism and identity staging: The Accounting and Auditing Organization for Islamic Financial Institutions. *Critical Perspectives on Accounting*, 63, 102000.
- Karim, M. R. A., Hassan, M. K., & Hassan, T. (2010). Empirical comparison of Islamic and conventional insurance: Evidence from Malaysia. *Journal of Islamic Economics, Banking and Finance*, 6(3), 77–97.
- Khalid, U., Ali, A., & Audi, M. (2025). Understanding Borrowing Behaviour in the EU: The Role of Mobile Payments, Financial Literacy, and Financial Access. *Annual Methodological Archive Research Review*, *3*(5), 41-66.
- Khan, I., Audi, M., & Ali, A. (2025). Audit Committee Characteristics and Auditor Opinions: Evidence from Pakistan's Listed Firms. (2025). *Annual Methodological Archive Research Review*, 3(8), 141-162.
- Khan, M. B., Mehmood, W., & Ullah, I. (2022). Comparative efficiency analysis of Takaful and conventional insurance firms: Evidence from selected Islamic countries. *Future Business Journal*, 8(1), 1–12.
- Khan, M. F., & Bhatti, M. I. (2008). Development in Islamic insurance: A comparative study of the Islamic and conventional insurance. *The Journal of Risk Finance*, 9(1), 40–51.
- Khan, M. M., Audi, M., & Ali, A. (2025). Data analytics capability and financial performance: evidence from a panel data perspective. *Qualitative Research Journal for Social Studies*, 2(2), 1917-1933.
- Khan, M. S., Audi, M., & Ali, A. (2025). Foreign Direct Investment, Financial Development, and Sustainable Growth: Empirical Evidence from Developing Countries. *Journal of Social Signs Review*, 3(8), 189–211.
- Maali, B., Casson, P., & Napier, C. (2006). Social reporting by Islamic banks. Abacus, 42(2), 266-289.
- Marc, A., Sadiq, A., & Ali, A. (2021). Performance Evaluation of Islamic and Non-Islamic Equity and Bonds Indices. Evidence from Selected Emerging and Developed Countries. *Journal of Applied Economic Sciences*, 16(3).
- Nasir, F. B., Audi, A., & Ali, A. (2025). Determinants of Corporate Tax Planning Strategies Among Multinational Corporations in The United Arab Emirates. *Contemporary Journal of Social Science Review*, 3(2), 2187-2196.
- Obaidullah, M. (2005). Islamic financial services. Islamic Economics Research Center, King Abdulaziz University.
- OECD. (2015). G20/OECD principles of corporate governance. Organisation for Economic Co-operation and Development.
- OECD. (2021). Digital disruption in insurance: Innovation, technology, and risk. Organisation for Economic Cooperation and Development.
- Olorogun, L., & Othman, J. (2021). Exploring ethical dimensions of Islamic insurance: Implications for market acceptance in Malaysia. *Journal of Business and Economic Options*, 4(1), 25-31.
- Omri, M. B. (2022). Understanding the relationship between liquidity and banking financial stability in Islamic and conventional banks. *Journal of Business and Economic Options*, 5(1), 39-47.
- Outreville, J. F. (2013). The relationship between insurance and economic development: 85 empirical papers for a review of the literature. *Risk Management and Insurance Review*, 16(1), 71–122.
- Qaisrani, M. A., Audi, A., & Ali, A. (2025). Perceptions of ERM Adoption Across Industries: Firm Size, Regulation, And Maturity Effects. *Journal for Current Sign*, 3(3), 917–941.
- Rahman, A. R. A., & Bukair, A. A. (2015). The influence of the Shariah supervision board on corporate social responsibility disclosure by Islamic banks of Gulf Cooperation Council countries. *Social Responsibility Journal*, 11(1), 109–130.
- Raza, Z., & Khan, K. (2023). Determinants of expected service quality in conventional and Islamic banking in Pakistan. *Journal of Policy Options*, 6(1), 17-22.
- Rejda, G. E., & McNamara, M. J. (2017). Principles of risk management and insurance (13th ed.). Pearson Education.
- Shafii, Z., & Salleh, S. (2010). Enhancing transparency and accountability in Islamic financial institutions through Shariah governance. *International Review of Business Research Papers*, *6*(1), 85–94.
- Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. *Academy of Management Review*, 20(3), 571–610.
- Swiss Re Institute. (2020). World insurance: Riding out the 2020 pandemic storm. Swiss Re Sigma Report.
- Ustaoglu, M., & Yildiz, B. (2023). Balancing Tradition and Modernity in Turkey's Islamic Finance Landscape. *Journal of Business and Economic Options*, 6(4), 14-20.
- Wadood, M. R. (2025). Monetary Policy Transmission in Bangladesh: Evaluating the Most Effective Channels. *Journal of Business and Economic Options*, 8(1), 15-27.

Disclaimer/Publisher's Note:

The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of RESDO and/or the editor(s). RESDO and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.

Funding:

The authors received no external funding for the publication of this article.

Data Availability Statement:

All data generated or analyzed during this study are not included in this submission but can be made available upon reasonable request. Additionally, the data are publicly available.

Conflicts of Interest:

The authors have no conflicts of interest related to this research.