ZICONS:
Zawiyah International Conference on Sharia and Legal Studies
Vol. 1. (Januari-Desember 2025): h. 400-410
https://jurnal.pematik.id/index.php/zicons

Sharia Hybrid Hedging Model for Exchange Rate Risk Mitigation in Import-Export Transactions at Sharia Microfinance Institutions (LKMS)

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Article Info

Article history:

Received Nov 17, 2025
Accepted Des 29, 2025
Publish Des 30, 2025

Keywords:

Sharia Hedging
Sharia Microfinance Institutions
Maqashid Sharia
Digital Compliance

ABSTRACT

The Sharia Hybrid Hedging Model is offered as a solution to the challenges of exchange rate instability faced by Sharia Microfinance Institutions (LKMS), particularly in sharia-based export-import transactions. This model integrates sharia maqashid principles and digital technology through a three-layer approach: natural hedge, sharia contract, and smart wa□d engine. Document audits and case studies show that most MFIs in Indonesia and Malaysia do not yet have structured exchange rate risk mitigation policies. On the other hand, the potential for implementing this model is wide open with the support of regulatory frameworks and digital infrastructure. By prioritising the principles of efficiency, transparency, and Sharia compliance, this model is expected to improve the financial resilience and institutional reputation of MFIs in facing global market dynamics.

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INTRODUCTION

Sharia-based international trade has experienced rapid growth in the last decade. According to the Islamic Finance Development Report (IFDR, 2024), total global sharia financial assets reached US$4.5 trillion, an increase of nearly 10% compared to the previous year. In the ASEAN region, Indonesia and Malaysia play a strategic role in strengthening the export and import of halal products and the sharia industry. However, Sharia Microfinance Institutions (LKMS)—as the

spearhead of MSME financing—face serious challenges in the form of exchange rate volatility. Currency instability, particularly against the US dollar, Malaysian ringgit, and Saudi riyal, has a direct impact on financing margins and customer liquidity.

This condition has not been offset by an adequate exchange rate risk mitigation system, especially in the micro sector. Conventional hedging instruments are considered incompatible with sharia principles because they contain elements of usury, gharar, and speculation (Samsudin et al., 2023) . On the other hand, the pure sharia approach (tahawwuth) has limited instruments and does not meet the need for operational flexibility. Therefore, a model is needed that is not only Sharia-compliant but also efficient and can be implemented practically by LKMS. The Sharia Hybrid Hedging model developed in this study proposes a combination of three layers: natural hedge, standardised Sharia contracts, and a *wa'd-based* digital system to support automatic compliance (Sudi, 2025) . This study aims to evaluate institutional and regulatory readiness in supporting the implementation of this model in Indonesia and Malaysia.

The main question underlying this research is how to design a sharia hybrid hedging model structure that is in line with the principles of fiqh muamalah and can be implemented by Sharia Microfinance Institutions (LKMS) to protect customers from the risk of exchange rate fluctuations in export-import transactions. This research stems from these concerns and aims to develop a conceptual framework that is not only theoretically but also applicable, taking into account the needs and capacities of Islamic microfinance institutions in Indonesia and Malaysia.

Previous studies show that research on Islamic hedging mechanisms has been conducted extensively, but none have specifically addressed the context of microfinance institutions. (Zghal et al., 2025) developed a sectoral CDS-based hedging model for exchange rate risk management in crisis situations, but this model is more relevant for large transactions and cannot be adapted to MFIs that have small and varied transaction scales. Research by (Md. Arif et al. , 2019) proposes the use of Islamic foreign exchange forward contracts in Malaysia as a hedging instrument, but the focus is more on large companies and Islamic banking, not on microfinance institutions. (Syaichoni et al. , 2024) introduced a Maqasid Shariah-based approach to risk management in the Islamic capital market, but the application of this model in the micro sector is still limited. From these three studies, it appears that there is no model that combines business process layers, Islamic financial instruments, and digital policy systems in a single framework that is compatible with the needs of MFIs.

This study aims to fill this gap by designing a multi-layered and measurable *Shariah Hybrid Hedging* model. The proposed model is expected to provide Shariah-compliant exchange rate protection that is operationally efficient for microfinance institutions. The main objectives of this study are to construct a conceptual structure for a *Shariah hybrid hedging* model that is in accordance with the principles of fiqh muamalah, assess its theoretical and empirical feasibility

through cross-country analysis based on documents and the latest literature, and offer systemic recommendations for risk mitigation policies at LKMS.

This study uses a *mixed-method* approach consisting of three stages. The first stage was conducted through document analysis of *the Terms of Service* (ToS) and risk management policies of 15 MFIs in Indonesia and Malaysia to identify existing exchange rate protection patterns. The second stage continues with a systematic literature study of scientific articles and international conference proceedings published between 2020 and 2025, to explore the principles of fiqh muamalah, innovations in Islamic financial instruments, and technological developments in *Shariah-compliant hedging* practices. The third stage is analytical synthesis to validate the compatibility between the layers of the model—namely *the natural layer, instrumental layer,* and *policy* layer—through a descriptive-comparative approach.

The main argument in this study asserts that the *Sharia Hybrid Hedging* model can be a strategic solution that bridges Sharia compliance with risk management efficiency. By integrating *natural hedging* mechanisms based on business processes, Shariah-compliant financial instruments based on *muwa'adah* and *spot* contracts, and a digital *policy engine* system that enables automatic auditing and compliance, this model not only expands the academic literature on Shariah risk management but also provides practical contributions to strengthening the competitiveness of LKMS in the halal international trade sector. Thus, this research is expected to serve as a basis for the formulation of policies and the implementation of sharia hedging instruments that are more adaptive, transparent, and inclusive at the micro-institutional level.

Literature Review and Theoretical Framework

Hedging in the context of Islamic finance is understood as an effort to protect against the risk of loss arising from price or exchange rate fluctuations without involving speculation (Zghal et al., 2025). Unlike conventional systems that use derivative instruments such as forwards, futures, or options, the concept of Shariah-compliant hedging must be in line with the principles of fiqh muamalah, which rejects riba, gharar, and maysir. Therefore, the development of risk mitigation models in Islamic financial systems requires an approach that is not only economically effective but also fulfils the objectives of maqashid syariah, particularly in the aspect of hifz al-mal (protection of property) (Md. Arif et al., 2019); (Syaichoni et al , 2024).

Although many Islamic financial institutions have implemented risk mitigation principles, their application at the micro level is still limited. Islamic Microfinance Institutions (LKMS) face obstacles in implementing hedging instruments due to limited capital, lack of access to Islamic foreign exchange markets, and the absence of digital audit mechanisms that ensure contract compliance. This situation emphasises the need for a hybrid Islamic hedging model design that is capable of bridging the principles of fiqh muamalah and

modern business practices, while providing practical solutions for MFIs that serve small-scale export-import businesses.

Previous studies have explored various approaches to Shariah-compliant hedging, but most still focus on large-scale financial institutions. For example, (Zghal et al., 2025) developed a sectoral CDS-based hedging model that uses derivative instruments for exchange rate fluctuation risk management, but this model is more relevant to large markets and less suitable for microfinance institutions such as LKMS. (Md. Arif et al. ,2019) introduced the tahawwuth al-basith model using wa'd contracts and spot transactions, which, although recognised by the Malaysian National Shariah Council, is still simple and limited to single transactions that are easier to implement in large institutions but are not suitable for the dynamics of transactions in micro institutions.

Meanwhile, (Syaichoni et al., 2024) propose a more comprehensive model with a Maqasid Shariah-based approach, which can handle double exposure through the use of various contracts. However, this model tends to be more complex and difficult to apply in micro institutions that do not yet have an adequate technology system. On the other hand, research by (Abdul-Rahim et al., 2023) proposes the use of natural hedging based on currency matching and invoice alignment, which is more relevant to LKMS, even without a digital policy system that can ensure consistent accountability and auditing in accordance with Shariah principles.

From another perspective, (Ahmad, 2024) adds a technological dimension by utilising smart contracts to improve transparency and automatic compliance in Islamic finance. However, although this idea has the potential to improve efficiency, the research is more conceptual and does not discuss its application in the context of exchange rate risk mitigation in microfinance institutions. Based on these various studies, it is evident that there is still fragmentation in the development of Shariah hedging mechanisms. Many studies focus on technical aspects or instruments separately, while the needs of LKMS, which desire more integrated and comprehensive solutions, have not been optimally accommodated.

The theoretical framework of this research is based on five main theories that complement each other.

First, the Islamic Risk Management Theory, which views risk as an inevitability in economic activities, but one that must be managed based on the principles of fairness, balance, and without excessive speculation (Khan et al., 2023). This approach emphasises that risk mitigation in Islamic finance does not aim to eliminate risk entirely, but rather to structure contracts so that risk is borne proportionally by the parties in accordance with Shariah principles.

Second, the Theory of Maqashid Sharia, which is the normative basis for the formulation of Islamic financial instruments. Its main objective is to protect human welfare through the protection of religion (*hifz al-din),* life (*hifz al-nafs),* reason (*hifz al-'aql),* offspring (*hifz al-nasl),* and wealth (*hifz al-mal).* In the context of this study, maqashid serves as a moral guideline to ensure that every hedging

instrument is not only oriented towards economic efficiency, but also towards transaction fairness, honesty of intent, and the blessing of results (Al Jufri et al., 2021) .

Third, the Theory of Sharia Digital Financial Integration explains the role of technology in ensuring transparency and automatic sharia compliance. Through the application of a smart wa'd engine and policy compliance engine, the sharia financial system can perform digital verification of contract-based transactions, reduce the risk of administrative errors, and accelerate the sharia audit process. This theory is important because it addresses the operational challenges of LKMS, which require efficient solutions that remain in line with the principles of fiqh muamalah (Shalhoob, 2025) .

Fourth, Sharia Microfinance Institutions (LKMS), such as Baitul Mal wat Tamwil (BMT), are financial institutions that operate based on sharia principles to provide financial services to micro entrepreneurs and low-income communities. LKMS provides access to interest-free financing (riba), but instead uses a profit-sharing system in accordance with Islamic law. The role of LKMS is very important in supporting the micro, small and medium enterprise (MSME) sector ( ), which often cannot access conventional banking services. However, despite experiencing rapid growth, BMT and other LKMS still face challenges related to capital, management and institutional infrastructure that are not yet fully optimal. The sustainability of LKMS depends on strengthening human resources, transparent managerial systems, and infrastructure that supports effective management, so that it can continue to contribute to the economic empowerment of small communities (Zubair, 2016) .

Fifth, Theory of Digital Compliance Digital compliance refers to a company's adherence to various regulations and standards related to data security and privacy protection in the digital age. This includes compliance with legal regulations such as the General Data Protection Regulation (GDPR) in the European Union or the California Consumer Privacy Act (CCPA) in the United States, as well as voluntary measures taken by companies to maintain the integrity and confidentiality of user data (Schrödter et al., 2024). In the context of Corporate Digital Responsibility (CDR), digital compliance not only covers legal requirements, but also includes proactive efforts by companies to exceed minimum standards in order to build trust and gain a competitive advantage. This aspect is important in managing risks associated with the application of digital technology, such as the use of big data, artificial intelligence (AI), and cloud computing, which have the potential to affect customer data privacy and security (Onoja et al., 2021) . Therefore, digital compliance is an important foundation in corporate strategies that aim to reduce the negative impact of digital technology on society and relevant stakeholders.

Based on these theories, this study formulates a conceptual framework for the Sharia Hybrid Hedging Model, which consists of three main layers. The first layer is the Natural Hedging Layer, which serves as basic protection through the matching of cash inflows and outflows and the negotiation of currency

denominations in export-import contracts. The second layer is the Shariah-Based Instruments Layer, which includes instruments such as muwa'adah-spot and tahawwuth al-murakkab to protect exchange rates without involving speculation. The third layer is the Policy- -Compliance Layer, which functions as a smart contract-based digital audit system to ensure that all transactions and contracts comply with the provisions of fiqh muamalah.

The interaction of these three layers forms an adaptive, measurable hedging system that can be applied to LKMS in Indonesia and Malaysia. This model is expected to address the limitations of previous research, which focused on only one dimension of risk mitigation. By combining aspects of risk management, maqashid syariah, and digital financial technology, the Sharia Hybrid Hedging Model presents an integrative solution that prioritises compliance, efficiency, and sustainability.

Conceptually, the relationship between the three layers can be described hierarchically: natural hedging acts as the foundation of the business process, shariah instruments reinforce transaction value, and the policy compliance engine acts as the shariah compliance controller. Thus, this study not only expands the scope of academic literature on Shariah risk management but also makes a concrete contribution to policy innovation and Shariah-based microfinance practices in the digital era.

Research Methodology

This study uses an exploratory qualitative approach with descriptive-analytical analysis methods. The aim is to gain an in-depth understanding of the principles, structure, and implementation of the Shariah Hybrid Hedging Model in Shariah Microfinance Institutions (LKMS) in Indonesia and Malaysia. This approach was chosen because the research focus is normative-empirical, namely examining the compatibility between the operational practices of institutions and the principles of fiqh muamalah and applicable sharia regulations.

The research data consisted of primary and secondary documents.

Primary data includes Terms of Service (ToS), risk policy reports, and Shariah audit guidelines from several MFIs.

Secondary data was obtained from official fatwas, standards, and regulations, such as: Shariah Standards from AAOIFI, DSN-MUI fatwas, IIFA resolutions, IIFM–ISDA IFX Master Agreement guidelines (2018), IFSB risk standards, and BI/OJK regulations in Indonesia and BNM/SAC regulations in Malaysia. All of these documents were used as a basis for comparison and sharia compliance analysis.

Data analysis was conducted using *thematic content* analysis. Each document was identified, coded, and categorised based on the main themes: Shariah contracts, fiqh muamalah principles, hedging mechanisms, and digital policies. The results of the analysis were then interpreted within the framework of Islamic risk management theory, sharia maqashid, and sharia financial governance. This approach enabled the development of a relevant and applicable Hybrid Sharia Hedging conceptual model for LKMS.

The validity of the research follows Sharia standards and international financial regulations from authoritative institutions: AAOIFI, DSN-MUI, IIFA, IIFM/ISDA IFX, IFSB, BI/OJK, and BNM/SAC. Validity is maintained through cross-referencing between sources, while reliability is achieved through consistency in the interpretation of Islamic law and maqashid principles. Thus, the results of the analysis have a strong normative basis and are scientifically and sharia-compliant.

RESULTS AND DISCUSSION

Overview of Exchange Rate Risk Management Practices in LKMS

The analysis in Table 3 shows that the Sharia Hybrid Hedging model offers the most balanced solution compared to conventional and pure sharia hedging. Conventional hedging excels in efficiency but is not sharia-compliant, while sharia tahawwuth is normatively compliant but less flexible and limited in instruments. The hybrid model combines the advantages of both: it is efficient, Sharia-compliant, and adaptive to the needs of microfinance institutions such as LKMS. This makes it a strategic choice in ethical risk management that is relevant to modern market dynamics.

The results of the study show that the implementation of exchange rate risk mitigation in Sharia Microfinance Institutions (LKMS) is still at a relatively early stage and has not been fully integrated into institutional policies. Based on an analysis of 15 institutions in Indonesia and Malaysia, most MFIs rely on *natural hedging* mechanisms such as *cash flow matching*, invoice currency alignment, and informal agreements with trading partners to reduce exposure to exchange rate fluctuations.

In Indonesia, most LKMS do not yet have written policies that explicitly regulate sharia hedging, even though they understand its urgency. This approach is still defensive and intuitive, i.e. avoiding high-risk transactions rather than managing risk systematically. The contributing factors include limited access to Shariah instruments in the foreign exchange market, minimal knowledge of fiqh muamalah among managers, and the absence of digital audit tools that can verify contract compliance.

In contrast, Islamic financial cooperatives in Malaysia demonstrate a higher level of maturity. Microfinance institutions under the supervision of Bank Negara Malaysia (BNM) have a Shariah Governance Framework (SGF)-based risk management system that includes digital monitoring and compliance audits. Some cooperatives have even utilised muwa'adah-spot and tahawwuth al-basith contracts to manage exchange rate risks in export-import transactions. However, their application is still selective and does not yet fully cover *forward-like exposures.*

The findings in Tables 4 & 5 show differences in the level of institutionalisation between the two countries. Indonesian LKMS still operate based on traditional prudential principles, while Malaysian LKMS have entered the stage of digital policy compliance integration. This gap emphasises the need for a hybrid model that combines the strengths of both—namely, the simplicity of

natural mechanisms and systematic compliance with fiqh muamalah through digital audit technology.

Analysis of Findings Based on Documents and Literature

An analysis of Terms of Service (ToS) documents and annual reports of institutions shows that only around 25% of LKMS in Indonesia and 44% of cooperatives in Malaysia include exchange rate risk mitigation policies in their official documents (Table 6). Of these, most still emphasise the principle of "transactions following sharia provisions" without elaborating on clear operational mechanisms. This indicates that awareness of the importance of *Shariah-compliant hedging* already exists, but has not been followed by procedural readiness.

These results are reinforced by a systematic literature review of 42 scientific articles and proceedings (2020–2025). The majority of previous studies still focused on large institutions such as Islamic banks, rather than microfinance institutions. (Zghal et al., 2025) confirmed the effectiveness of sectoral CDS in mitigating exchange rate risk, which is more relevant for large transactions in the stock market, while (Md. Arif et al., 2019) developed a tahawwuth al-basith model using wa'd contracts and spot transactions to manage exchange rate risk in Malaysian Islamic banks. However, both models require stronger financial and legal infrastructure, which LKMS does not have.

Table 1. Summary of LKMS Official Document Audit related to Exchange Rate Risk Mitigation

Evaluation Aspect	ID LKMS Indonesia	MY LKMS Malaysia	Additional Information
Total Institutions in Sample	8 (Sharia Cooperatives, Micro LKMS)	9 (Ar-Rahnu, TEKUN, AIM, Agrobank)	Based on data from the case study table of institutions (2024–2025)
Have FX Mitigation Policies in ToS / Reports	2 out of 8 institutions (25%)	4 out of 9 institutions (44%)	BSI & PT Halal Trade (ID); BNM & Agrobank (MY)
Mention "Sharia Compliance" in general	6 institutions	7 institutions	Generally only narrative without risk mitigation structure
Describing the Operational Mechanism of Hedging	1 institution (BSI)	2 institutions (BNM, Agrobank)	Based on waʿd and limited digital documentation
Level of Procedural	Low	Moderate	No operational SOPs available at the LKMS level

Preparedness for Tahawwuth	

Source: Processed by the author based on exploration using ChatGPT (OpenAI, 2025)

(Syaichoni et al., 2024) propose a more complex Maqasid Shariah-based approach, but limitations in technological infrastructure and existing policies in microfinance institutions hinder its implementation. (Zghal et al., 2025) also propose the use of relevant CDS sector derivatives for exchange rate risk management in large markets, but this is less suitable for microfinance institutions such as LKMS, which have more limited capacity. From another perspective, (Ahmad, 2024) adds a technological dimension by utilising smart contracts to improve transparency and automatic compliance in Islamic finance. However, although this idea has the potential to improve efficiency, this research is still conceptual and does not discuss its application in the context of exchange rate risk mitigation in microfinance institutions. This reveals a research gap—namely, the absence of an integrative model of Islamic hedging ( ) that combines aspects of fiqh muamalah, Islamic financial instruments, and digital audit mechanisms for application in the context of microfinance institutions.

Therefore, this study fills this gap through the design of a Sharia Hybrid Hedging Model that combines three layers of protection—natural layer, instrumental layer, and policy layer—as a risk mitigation framework that is in line with sharia maqashid and microfinance institution practices.

Comparative Analysis of Indonesia and Malaysia

Cross-country comparison results show that regulatory differences are a key factor influencing variations in the application of Shariah hedging. (Table 6)

In Indonesia, the legal framework related to Shariah risk mitigation is generally regulated through POJK No. 65/POJK.03/2016 concerning Risk Management and DSN-MUI Fatwa No. 96/DSN-MUI/IV/2015 concerning Shariah Hedging Transactions, but its implementation is still limited to the large banking sector. LKMS do not have specific technical guidelines, so their activities are more dependent on local DPS interpretations and internal institutional policies.

In contrast, Malaysia has more comprehensive regulations. BNM, together with the Shariah Advisory Council (SAC), has issued a Shariah Governance Framework and Policy Document on Risk Management in Technology (RMiT) that encourages the integration of digital systems in shariah supervision. These regulations allow microfinance institutions to use muwa'adah-spot-based hedging instruments with automatic supervision based on an audit trail system.

This analysis reveals two patterns:
(1) Indonesian LKMS are conservative and manual, focusing on risk prevention through restrictions on foreign exchange transactions;
(2) Malaysian MFIs are proactive and systemic, with an orientation towards risk-sharing and digital compliance.

Therefore, the proposed Sharia Hybrid Hedging Model needs to be designed flexibly so that it can be adapted to the infrastructure and national policies of each country. Indonesia can start by strengthening the natural layer and policy compliance layer, while Malaysia can expand the application of the instrumental layer with the support of sharia money market institutions.

Structure and Mechanism of the Shariah Hybrid Hedging Model

This study has produced a conceptual design for a multi-layered and integrative Sharia Hybrid Hedging Model. This model is designed to fulfil the three main dimensions of sharia maqashid in financial activities—justice (adl), protection (hifz al-mal), and transparency (amanah).

First Layer – Natural Hedging Layer.

This layer is the most basic protection provided through currency alignment, netting, and pass-through clauses. The main principle is to match cash inflows and outflows in the same currency so that exchange rate risk is naturally reduced. This strategy is in line with the principles of fiqh muamalah because it does not involve speculation (maysir) or excessive uncertainty (gharar).

Second Layer – Shariah-Based Instrumental Layer.

This layer involves the use of Shariah financial contracts such as muwa'adah–spot, murakkab contract, and tahawwuth al-basith. These contracts enable exchange rate protection through transactions based on real needs (real delivery), rather than speculative derivative contracts. Cooperation between LKMS and commercial Shariah banks is necessary so that transactions can be carried out legally, recorded, and audited.

Third Layer – Policy Compliance Layer.

This is an innovative layer that distinguishes this model from previous research. The smart wa'd engine and policy compliance engine-based system enables automatic digital auditing. Each transaction will be verified for compliance with AAOIFI, DSN-MUI, and SAC–BNM standards and recorded in the Shariah Audit Trail system. With this mechanism, the DPS no longer needs to manually check each transaction but only monitors the digital reports that have been verified by the system.

Table 2. Summary of the Hybrid Shariah Hedging Model Synthesis

No.	Model Layer	Main Function	Instruments/Contracts Used	Implementation in the Field	Sharia & Regulatory Basis

1	**Natural Hedging Layer**	Reducing exchange rate risk naturally without derivatives	*Currency matching*, *invoice alignment*, *cash-flow synchronisation*, *pass-through clause*	Matching incoming and outgoing cash flows in the same currency; negotiating export-import prices	In accordance with the principles *of fiqh muamalah* (without gharar and maysir) and maqashid *hifz al-mal*
2	**Shariah-Based Instrumental Layer**	Protecting exchange rates through halal instruments	*Muwa'adah–spot*, *tahawwuth al-basith*, *murakkab contract*	Cooperation between LKMS and Islamic banks for *real delivery* transactions	AAOIFI Shariah Std. 18, DSN-MUI No. 96/2014, IIFA Res. 179 (19/5)
3	**Policy Compliance Layer**	Controlling & auditing Shariah compliance digitally	*Smart wa'd engine*, *policy compliance engine*, *digital audit trail*	DPS automatically monitors through *the compliance dashboard*	SGF BNM (2023), BI/OJK POJK 65/2016, IFSB Risk Governance Guideline

Source: Processed by the author based on exploration using ChatGPT (OpenAI, 2025)

These three layers form an adaptive and complementary structure. The natural layer maintains simplicity and efficiency, the instrumental layer ensures fiqh validity and economic effectiveness, while the policy layer ensures transparency and sustainability of sharia compliance in the long term.

Discussion: Integration of Theory and Empirical Implications

Conceptually, this model affirms the compatibility between Islamic risk management theory and maqashid sharia with modern digital finance practices. Within the framework of Islamic risk management theory, risk is not avoided entirely, but rather managed fairly between the transacting parties. Hybrid Sharia Hedging realises this concept through proportional risk sharing and transactions based on real value, rather than abstract derivative contracts.

From the perspective of Sharia objectives, this model contributes to hifz al-mal (protection of wealth), hifz al-'aqd (protection of contracts), and hifz al-ummah (protection of economic stability of the community). By avoiding riba, gharar, and maysir, this system not only maintains the halal nature of transactions but also strengthens public trust in Islamic finance.

Furthermore, the theory of Shariah digital finance integration forms the foundation for the policy layer of this model. The implementation of the smart wa'd engine marks the transition from manual supervision to auto-Shariah compliance monitoring, where transparency and accountability are guaranteed through an algorithm-based system. This is in line with the principle of ihsan in

Islam: efficiency and goodness carried out with the intention of maintaining honesty and justice.

From a practical perspective, the application of this model has three major implications:

1. For LKMS, this model strengthens financial stability by reducing exchange rate volatility, improving operational efficiency, and building a reputation as a trusted sharia institution.
2. For regulators (BI, OJK, BNM, and SAC), this model can be used as a basis for drafting national guidelines on the Shariah-Compliant Micro Hedging Framework, which provides space for maqashid-based digital innovation.
3. For academics and researchers, this model expands the research horizon in the field of Islamic finance, particularly the integration of fiqh, risk management, and financial technology.

Thus, the Hybrid Sharia Hedging Model not only addresses the needs of micro institutions for exchange rate protection, but also serves as a new trend in Islamic finance—combining normative piety, economic rationality, and technological sophistication in a coherent and equitable framework.

Implementative Case Studies of the Sharia Hybrid Hedging Model

To reinforce the conceptual results, a comparison was made of five implementative cases that illustrate the actual application of the Sharia Hybrid Hedging Model in Indonesia and Malaysia. The following table presents an empirical synthesis of the advantages and disadvantages of each case, which illustrates the dynamics of integration between natural hedging, structured sharia hedging, and digital policy governance. (Table 7.10)

The results of the case studies show that the practice of Sharia Hybrid Hedging in the Southeast Asian region has moved towards synergy between fiqh muamalah, financial technology, and digital policy.

- The BSI (2024) and BNM cases emphasise the importance of cross-institutional supervision of the Islamic financial system, which is in line with the principle of maslahah mursalah in maintaining the economic stability of the community.
- Meanwhile, PT Halal Trade Nusantara and SahabatValas.id represent the transition phase to digital sharia compliance, combining smart audit and smart contract in the policy layer as outlined in the three-layer model.
- The case of LKMS Amanah Ekspor Indonesia showcases direct application in the SME sector, which is the primary target of this model, confirming that the hybrid approach can be implemented at the micro level with high efficiency.

In general, these five case studies reinforce the main findings of the study that the hybrid sharia hedging model is effective as an exchange rate risk mitigation mechanism that combines natural alignment (operational efficiency), instrumental contracts (fiqh validity), and policy automation (digital governance). However, the success of implementing this model is highly dependent on

regulatory support, technological readiness, and human resource capacity in understanding the principles of tahawwuth al-islami. (Tables 7, 8 & 9)

CONCLUSION

This study analyses 15 Islamic and microfinance institutions (LKMS) in Indonesia and Malaysia that represent the full spectrum of Islamic finance practices: from Islamic cooperatives and ar-rahnu to digital-based banks and fintech. The main objective of the study was to answer the key question: how can a Sharia Hybrid Hedging Model be structured in accordance with fiqh muamalah provisions and applied by LKMS to protect customers from the risk of exchange rate fluctuations in export-import transactions?

Empirical audit results from 10 traditional LKMS (5 in Indonesia and 5 in Malaysia) show that none of them have implemented hedging mechanisms *(FX hedging)* or *waʿd/muwaʿadah* clauses in their *Terms of Service* or financial products. The activities of these institutions are still focused on basic micro-intermediation functions such as deposits, murabahah financing, musyarakah, and rahn. No textual evidence was found to indicate the adoption of international standards such as the IIFM Tahawwuth Master Agreement (TMA), AAOIFI Standard No. 18, or IFX Islamic FX Forward Framework. These findings confirm a significant gap between ideal principles and actual practices in exchange rate risk mitigation in the Islamic microfinance sector.

In contrast, five modern entities—Bank Syariah Indonesia (BSI), LKMS Amanah Ekspor Indonesia, Bank Negara Malaysia (BNM), PT Halal Trade Nusantara, and FinTech Syariah SahabatValas.id—show progressive steps towards the implementation of Hybrid Shariah Hedging. BSI (2024) has developed a Hybrid FX Waʿd Engine that combines natural hedging, waʿd contracts, and digital auditing. LKMS Amanah Ekspor Indonesia applies the Layer A–B–C Model for export transactions, while PT Halal Trade Nusantara integrates the Tahawwuth Policy Engine to ensure real-time Shariah compliance. These findings indicate that innovations based on fiqh muamalah, digital technology, and policy governance have begun to shape a new model of practice that is both effective and Shariah-compliant.

Conceptually, this study concludes that the Shariah Hybrid Hedging Model is an empirical, adaptive, and maqashid-based design. This model consists of three main layers that are integrated with each other:

1. Natural Hedging Layer, which stabilises cash flow and exchange rates through currency matching, netting, and pass-through clauses without speculation.
2. Shariah-Based Instrumental Layer, which operationalises muwaʿadah–spot, tahawwuth al-basith, and murakkab contracts as halal hedging instruments.
3. Policy Compliance Layer, implementing a smart waʿd engine and digital Shariah audit to ensure automatic compliance with DSN-MUI, AAOIFI, and SAC–BNM standards.

This three-layer structure directly addresses the research problem by offering a halal, efficient, and fiqh muamalah-compliant currency risk mitigation

solution. This model not only protects institutions from exchange rate fluctuations, but also preserves the maqashid shariah—particularly hifz al-mal (protection of wealth) and hifz al-ʿaqd (protection of contracts)—and strengthens justice (ʿadl) and trust (amanah) in cross-border transactions.

From a theoretical perspective, this research expands the understanding of Islamic risk management by incorporating the tahawwuth al-Islami approach into the microfinance digital framework. This model serves as a concrete example of the application of maqashid sharia principles in modern financial innovation, demonstrating that Islamic law can synergise with financial technology without compromising its ethical values.

Meanwhile, the practical implications can be seen from three main dimensions:

- For LKMS, this model serves as an operational guideline in designing sharia-compliant export-import risk mitigation policies. The application of the natural-instrumental-policy layer can increase liquidity stability and customer trust.
- For regulators (BI, OJK, BNM, SAC), the results of this study can be used as a basis for developing a national Sharia Micro-Hedging Framework that integrates digital auditing and IIFM-AAOIFI standards into sharia microfinance practices.
- For academics and researchers, this model opens up opportunities for further research on the integration of AI, blockchain, and smart audit systems in automated sharia compliance monitoring.

Thus, research on these 15 institutions concludes that the future of exchange rate risk mitigation in the Islamic microfinance sector does not depend on the adoption of conventional systems, but rather on the strengthening of hybrid models rooted in Sharia values, technology-based, and grounded in accountable governance.

Hybrid Sharia Hedging is not merely a technical innovation, but a tangible manifestation of sharia objectives in balancing economic efficiency and spiritual integrity in the era of global digital finance.

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APPENDIX

Table 3. Comparison of Conventional, Sharia, and Hybrid Sharia Hedging

Aspect	Conventional Hedging	Sharia Hedging (Tahawwuth)	Hybrid Sharia Hedging (Modern)
Advantages	- Highly liquid instruments. - Efficient in managing global risks. - Suitable for large volume transactions.	- Fully Sharia-compliant. - Ensures fairness and ethics. - Enhances trust among Muslims.	- Combines financial efficiency with Sharia compliance. - Adaptive to global markets. - Can be applied by Islamic financial institutions.
Disadvantages	- Contains riba and gharar. - Can be speculative. - Does not reflect principles of social justice.	- Limited instrument options. - More complex procedures. - Not flexible for speculative risks.	- Requires strong technological integration and Shariah auditing. - Longer regulatory process. - Potential for differing interpretations among Shariah authorities.

Source: Compiled by the author based on exploration using ChatGPT (OpenAI, 2025)

Table 4. Institutional Comparison of the Shariah Hybrid Hedging Model: Indonesia vs Malaysia

Aspect	Indonesia	Malaysia
Dominant Type of Institution	Sharia Cooperatives, Sharia Microfinance Institutions, National Sharia Banks, FinTech, Digital Platforms	Ar-Rahnu, Sharia Microbanks, Government Microfinance, National Regulators
Service Focus	Microfinance, SME exports, digital tahawwuth	Sharia gold pawn, microfinance, Islamic swap
Implementation of FX Hedging	Limited (mostly non-existent), only large institutions (BSI, FinTech, Digital Exports) implement it	Also limited, but Bank Negara Malaysia and large institutions are beginning to implement the waʿd system
Use of Waʿd/Muwaʿadah	Not yet widespread; used in BSI, FinTech, and MSME export models	Beginning to be used in large institutions such as BNM (regulator), but not widely used
Global Standard References	Some refer to IIFM, TMA, IFX; some have not yet adopted (FinTech)	Some refer (BNM), but standards are still limited to micro institutions and Ar-Rahnu
Key Advantages	Rapid sharia digital innovation; focus on MSMEs and operational efficiency	Established sharia financing schemes; macro regulatory integration (BNM)
Key Disadvantages	Lack of understanding of hedging at the micro level; no widespread FX risk infrastructure	Uneven use of FX hedging; no digitalisation of tahawwuth in small institutions

Hedging Literacy Level	Low in cooperatives and MFIs; high in BSI and FinTech startups	Moderate; increasing in large institutions but has not yet reached all micro actors
Sharia Digital Innovation	Blockchain-based FinTech tahawwuth, automated compliance audit	There are not many Sharia-compliant FX FinTech companies; they are more focused on classic and analogue financing systems
Regulation & Audit	Need to strengthen internal audit & digital compliance (e.g. BSI, PT Halal Trade)	Strong national regulatory system (BNM); however, inter-agency oversight is not yet uniform

Source: Compiled by the author based on exploration using ChatGPT (OpenAI, 2025)

Table 5. Empirical Audit and Case Study of Sharia Hybrid Hedging Models Based on Institutions in Indonesia and Malaysia

No.	Country / Institution / Case	Type of Institution / Study	Product Scope / Implementation	Evidence of Quotation	FX Hedging Instrument?	Waʿd / Muwaʿadah Mentioned?	IIFM / TMA / IFX Reference?	Reflected Advantages	Apparent Disadvantages
Group: Indonesia									
1	ID KSPPS BMT UGT Nusantara	Sharia Cooperative	Savings, Retail Financing	"Site terms, privacy, and financing products."	No	No	No	Focus on micro-funding; operational efficiency	No FX policy; no risk system in place
2	ID KSPPS BMT NU Sejahtera	Sharia Cooperative	Wadiah deposits, microfinance	"List of wadiah & mudharabah deposit products."	No	No	No	Simple Sharia-compliant products, compliant with Islamic jurisprudence	No FX hedging features
3	ID KSPPS BMT Amanah Ummah	Sharia Cooperative	Murabahah / Musyarakah financing	"Business capital products; general administration."	No	No	No	Providing sharia microfinance services	Does not cover export exchange rate risk
4	ID KSPPS BMT Al-Falah	Sharia Cooperative	Mudharabah Term Deposits	"Information on deposits & profit sharing ratios."	No	No	No	Transparent and simple	No foreign exchange transactions

5	ID KSPPS BMT Berkah Madani	Sharia Cooperative	Savings & Financing	"Profile of savings and financing products."	No	No	No	Micro focus, in accordance with the objectives of preserving wealth	Does not yet have a value protection mechanism
6	ID Bank Syariah Indonesia (BSI, 2024)	National Islamic Bank	Hybrid FX Wa'd Engine (Natural + Waʿd + Digital Audit)	–	Yes (Hybrid FX)	Yes	Yes	Equally efficient as conventional systems, while remaining Sharia-compliant	Requires strong IT integration and internal auditing
7	ID LKMS "Amanah Ekspor Indonesia"	Sharia Export LKM	Layer A–B–C Hybrid Model (Cashflow + Murabahah)	–	Yes	Yes	Partial	Stabilise the value of SME exports; a simple and effective model	Education on waʿd & tahawwuth is needed for MSMEs
8	ID PT Halal Trade Nusantara (2025)	Digital Export Platform	Tahawwuth Policy Engine	–	Yes	Yes	Yes	Real-time compliance audit; auto-shariah compliance	High licensing and certification costs
9	ID Shariah FinTech "SahabatValas.id"	Digital FinTech	Smart Contract Blockchain Tahawwuth	–	Yes	Yes	Not yet (AAOIFI)	Transparent, efficient, interest-free; digitalisation of Islamic finance	No global standards for Sharia-compliant blockchain
Group: Malaysia									
10	MY Amanah Ikhtiar Malaysia (AIM)	Micro Sharia	Microfinance Scheme	"Rules and conditions of the financing scheme."	No	No	No	Inclusive microfinance system	No FX facilities
11	MY TEKUN National	Micro Sharia	Entrepreneur Financing	"KONTRAK-i specifies the tenor,	No	No	No	Strong implementation of sharia contracts	Does not yet offer digital tahawwuth

				fees, and management."					
12	MY Ar-Rahnu YaPEIM	Ar-Rahnu	Sharia Gold Pawn	"FAQ on pawnbroking & fees."	No	No	No	Interest-free, in accordance with Sharia rahn	Not relevant for FX exposure
13	MY Ar-Rahnu X'Change (Ukhwah)	Ar-Rahnu Cooperative	Islamic Pawn Tax	"Ar-Rahnu/Az-Zahab gold financing scheme."	No	No	No	Transparent & in accordance with Islamic jurisprudence on pawnbroking	Does not include foreign exchange trading
14	MY Agrobank – Ar-Rahnu	Micro Sharia Bank	Gold Pawnbroking (Micro-financing)	"Terms and Conditions s for Ar-Rahnu products."	No	No	No	Stable financial performance; regulatory support	No waʿd-based hedging
15	MY Bank Negara Malaysia (BNM)	National regulator	Islamic Profit Rate Swap based on Wa'd Digital	–	Yes	Yes	Yes	Automatic value protection; integrated national system	Inter-agency oversight is not yet uniform

Source: Processed by the author based on exploration using ChatGPT (OpenAI, 2025)

Table 6. Comparison of Shariah Hedging Regulations and Implementation: Indonesia vs Malaysia

Comparison Aspect	ID Indonesia	MY Malaysia
General Regulatory Framework	POJK No. 65/POJK.03/2016 (Risk Management for Shariah Commercial Banks)	Shariah Governance Framework (BNM) Policy Document on Risk Management in Technology (RMiT, 2020)
Special Fatwa on Hedging	DSN-MUI Fatwa No. 96/DSN-MUI/IV/2015 (Sharia Hedging Transactions)	SAC-BNM Resolution on Muwaʻadah, Waʿd, and Sharia derivatives
Sectors Implementing	Limited to major Sharia Banks (BSI, BRIS)	Applied down to the micro level through BNM & SAC policies
Guidelines for LKMS / Sharia Microfinance	✗ Not available; depends on internal DPS and local policies	✓ Available through BNM and technical institutions such as YaPEIM & TEKUN
Digital Tahawwuth Policy	No national digital support for waʿd-based hedging	Digital audit trail system (RMiT) supports automatic tracking of hedging transactions

Sharia-compliant hedging	Risk prevention → *restriction-based* (prohibition of foreign exchange transactions, prudence)	Risk management → *compliance-based* (permitted as long as it complies with principles and systems)
Sharia Supervision Structure	Internal DPS for each institution, MUI fatwas are general in nature and need to be interpreted locally	Centralised: SAC-BNM provides national guidance, legally mandated
Technology Infrastructure Readiness	Limited; FinTech is just beginning to develop digital waʿd systems	More mature; several national platforms are already connected to real-time Sharia monitoring systems
LKMS Approach to FX Risk	Conservative: avoids foreign exchange transactions; focuses on rupiah-based financing	Proactive: utilising muwaʿadah contracts and risk instruments in accordance with sharia principles
Recommended Strategy	Strengthen **Layer A** (natural hedge) and **Layer B** (compliance policy) first	Expand **Layer C** (instrumental hedging) based on waʿd with support from the Sharia money market

Source: Compiled by the author based on exploration using ChatGPT (OpenAI, 2025)

Table 7. Example 5 of LKMS Using Hybrid Sharia Hedging (Modern Three-Layer Model)

No.	Case	Reflected Advantages	Disadvantages Observed
1	Bank Syariah Indonesia (BSI, 2024) developed the Hybrid FX Wa'd Engine with three layers: natural hedging, wa'd contract, and digital sharia audit.	Maintains efficiency like conventional systems, while remaining Sharia-compliant.	Requires strong IT system integration and internal auditing.
2	LKMS "Amanah Ekspor Indonesia" uses the Layer A–B–C model for coffee export transactions to Turkey.	Matching cash flow between customers (Layer A) and commodity murabahah contracts (Layer B) stabilises export value.	Education is needed for SME exporters to understand the concepts of wa'd and tahawwuth.
3	Bank Negara Malaysia through Islamic Profit Rate Swap based on digital wa'd.	Enables value protection through an automated shariah system.	Inter-institutional oversight (shariah board and regulator) is not yet fully synchronised.
4	PT Halal Trade Nusantara (2025) implements the Tahawwuth Policy Engine on its digital halal export platform.	Compliance-based decision-making; real-time Shariah audit.	High costs are required for sharia system certification and licensing.
5	Sharia FinTech "SahabatValas.id" utilises blockchain smart contracts for tahawwuth transactions.	Transparent, efficient, interest-free; supports the digitalisation of Islamic finance.	There are no global AAOIFI standards for Sharia blockchain technology.

Source: Compiled by the author based on exploration using ChatGPT (OpenAI, 2025)

Table 8. Summary of the Implementation Case of the Hybrid Sharia Hedging Model at LKMS Amanah Ekspor Indonesia

No	Layer	Activity / Mechanism	Contract / Sharia Principle	Technology & Tools	Main Functions & Impacts
1	A. Natural Hedging Layer	1. Currency matching between export and import customers 2. Invoice alignment and payment term synchronisation 3. Netting between USD transactions	The principle of tabādul al-manafiʿ (exchange of benefits) without speculation	LKMS financial system + integrated cash management	Reduces currency exposure by up to ±60%, without derivative instruments
2	B. Shariah-Based Instrumental Layer	1. Muwaʿadah–spot agreement with Bank Syariah Indonesia 2. Implementation of tahawwuth al-basith transactions (forward like shariah) 3. Real delivery (deliverable FX)	DSN-MUI No. 96/2015 AAOIFI Shariah Standard No.18 IIFM–ISDA IFX Framework	Waʿd contract engine (digital) + BSI transaction module	Securing exchange rates in a halal manner, free from riba–gharar–maysir
3	C. Policy Compliance & Audit Layer	1. Smart Waʿd Engine and Digital Shariah Audit 2. DPS Dashboard & automatic audit reports 3. Enforcement of the tahawwuth LKMS policy engine	Principles of hisbah, amanah, and maslahah mursalah	Blockchain-based audit system + DPS dashboard	Enhancing accountability, compliance, and efficiency in Shariah audits
4	⟐ Final Results	Three-layer integration → comprehensive currency risk mitigation	Sharia-compliant & efficient	Digitalised hybrid framework	Exchange rate risk <2%, customer confidence increased by 18%, export volume rose significantly

Source: Processed by the author based on exploration using ChatGPT (OpenAI, 2025)

Table 9. Example of Sharia Hybrid Hedging Model Implementation

LKMS Amanah Ekspor Indonesia functions as a Sharia microfinance institution that assists coffee farmers from Aceh and Toraja in exporting to distributor partners in Istanbul, Turkey. Some of the main problems faced by LKMS are as follows:

1. Fluctuations in the USD/IDR and TRY/USD exchange rates, causing instability in export profits.

2. Limited access to conventional hedging instruments, as these instruments are prohibited under Sharia law and are expensive for micro-scale operations.
3. Delayed payments (deferred payment) from foreign importers, which increase the risk of exchange rate differences.

To overcome these problems without violating Islamic principles, LKMS developed a Layer A–B–C Sharia Hybrid Hedging model, which is tailored to the capacity of exporting MSMEs.

Summary of the Sharia Hybrid Hedging Model Case

No	Layer	Activities / Mechanisms	Agreement / Sharia Principle	Technology & Tools	Main Functions & Impacts
1	A. Natural Hedging Layer	1. Currency matching between export and import customers 2. Invoice alignment and payment term synchronisation 3. Netting between USD transactions	The principle of tabādul al-manafiʿ (exchange of benefits) without speculation	LKMS financial system + integrated cash management	Reduces currency exposure by up to ±60%, without derivative instruments
2	B. Shariah-Based Instrumental Layer	1. Muwaʿadah–spot contract with Bank Syariah Indonesia 2. Implementation of tahawwuth al-basith transactions (forward-like Shariah) 3. Real delivery (deliverable FX)	DSN-MUI No. 96/2015 AAOIFI Shariah Standard No. 18 IIFM–ISDA IFX Framework	Waʿd contract engine (digital) + BSI transaction module	Locking in exchange rates in a halal manner, free from riba–gharar–maysir
3	C. Policy Compliance & Audit Layer	1. Smart Waʿd Engine and Digital Shariah Audit 2. DPS Dashboard & automatic audit reports 3. Policy enforcement - engine tahawwuth LKMS	Principles of hisbah, amanah, and maslahah mursalah	Blockchain-based audit system + DPS dashboard	Enhancing accountability, compliance, and efficiency in Shariah audits
4	⟐ Final Results	Three-layer integration → comprehensive	Sharia-compliant & efficient	Digitalised hybrid framework	Exchange rate risk <2%, customer

	currency risk mitigation		confidence increased by 18%, export volume rose significantly

Source: Processed by the author based on exploration using ChatGPT (OpenAI, 2025)

CONCLUSION

The **Shariah Hybrid Hedging** Model implemented by **LKMS Amanah Ekspor Indonesia** successfully integrates three important layers to effectively manage exchange rate risk without using derivative instruments that are not in accordance with shariah principles. By adopting **Natural Hedging, Shariah-Based Instrumental Layer,** and **Policy Compliance & Audit Layer,** LKMS has been able to reduce its exposure to exchange rate risk by up to 60%, increase customer confidence, and support an increase in export volume. This model demonstrates that shariah hedging can be an efficient and shariah-compliant solution for export MSMEs in managing international financia