



**Mudharabah Adoption as Institutional Risk Governance:
Evidence from Coastal Livelihoods in Indonesia**

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Abstract

Purpose

This study examines the adoption of mudharabah financing in high-risk coastal livelihoods by reframing Islamic financial contracts as instruments of institutional risk governance rather than purely normative or religious arrangements. It seeks to explain how institutional processes shape adoption decisions under conditions of environmental and income uncertainty.

Design/methodology/approach

A quantitative research design is employed using survey data from 440 coastal economic actors in Indonesia. The proposed framework is tested through a serial mediation model using partial least squares structural equation modeling (PLS-SEM). Multi-group analysis is further applied to capture contextual variations across geographic settings and fishing-asset ownership structures.

Findings

The findings indicate that access to capital and perceived fairness do not directly influence the intention to adopt mudharabah. Their effects are fully transmitted through a sequential institutional pathway involving the institutional role of Islamic financial intermediaries, risk-management practices addressing weather and price volatility, and the formation of institutional trust. Multi-group analysis reveals that these institutional pathways are significantly stronger in mainland coastal areas and among individual asset owners, suggesting that institutional risk governance operates unevenly across contexts.

Practical implications

The results suggest that strengthening mudharabah adoption requires more than expanding access or emphasizing Shariah compliance. Islamic financial institutions should prioritize institutional capacity for risk governance, including contract clarity, distributive fairness, and operational risk-management mechanisms, particularly in vulnerable coastal environments.

Originality/value

This study contributes to the Islamic finance and development literature by reconceptualizing mudharabah adoption as an outcome of institutional risk governance. It positions trust as an endogenous result of institutional performance and offers a context-sensitive framework for designing Islamic microfinance interventions in high-risk livelihood settings.

Keywords: Mudharabah; Islamic microfinance; Institutional risk governance; Risk management; Institutional trust; Coastal development

1. Introduction

Coastal regions occupy a strategic position in Indonesia's economic and social structure, supporting millions of households and contributing significantly to national food security and regional development. Small-scale fisheries, aquaculture, and related coastal activities form the backbone of local economies, yet these livelihoods remain among the most vulnerable in terms of income stability and risk exposure. Weather uncertainty, seasonal cycles, and volatile market prices create persistent fluctuations in earnings, rendering coastal households highly exposed to covariate risks that are difficult to mitigate through individual strategies alone (Allison, et al., 2009; FAO, 2018). Under such conditions, access to appropriate financial mechanisms becomes not merely an inclusion issue, but a central determinant of livelihood resilience and adaptive capacity.

Despite sustained policy attention, conventional development interventions in coastal areas (largely focused on infrastructure provision, production enhancement, and technology transfer) have delivered uneven outcomes. A growing body of evidence suggests that these efforts are insufficient when not accompanied by institutional arrangements capable of managing economic uncertainty and livelihood risk (Béné C. , When fishery rhymes with poverty: a first step beyond the old paradigm on poverty in small-scale fisheries, 2003; Béné & Haque, 2022; Cohen, et al., 2019). Financial exclusion in coastal communities persists even in areas where formal financial institutions are physically present, indicating that the problem extends beyond geographic access. Instead, it reflects a deeper mismatch between the design of financial products and the risk characteristics, income patterns, and collective production structures of coastal livelihoods (Karlan & Goldberg, 2011; Karlan, Ratan, & Zinman, 2014).

Within this context, Islamic finance (particularly Islamic microfinance) has been widely promoted as a promising avenue for inclusive coastal development. Profit-and-loss sharing contracts such as mudharabah are normatively positioned as equitable instruments that align financial returns with real economic performance while distributing risk between capital providers and entrepreneurs. In theory, such contracts appear well-suited to high-risk environments like fisheries, where income is uncertain, and losses are often driven by external shocks beyond individual control (Iqbal & Mirakhor, 2017; Mirakhor, Iqbal, & Sadr, 2020). Consequently, Islamic financial institutions in Indonesia, including Baitul Maal wat Tamwil (BMT), community-based Islamic microfinance cooperatives, and Bank Perekonomian Rakyat Syariah (BPRS), Islamic rural banks operating under Indonesia's dual banking system, have been encouraged to expand mudharabah-based financing as part of development-oriented financial inclusion strategies. ~~Consequently, Islamic financial institutions in Indonesia, including micro-level entities such as Baitul Maal wat Tamwil (BMT) and Islamic rural banks (BPRS), have been encouraged to expand mudharabah-based financing as part of development-oriented financial inclusion strategies.~~

However, empirical evidence reveals a persistent gap between normative expectations and actual practice. Across Islamic banking and microfinance sectors, mudharabah remains one of the least utilized financing instruments, with institutions continuing to rely predominantly on debt-based contracts that transfer risk to borrowers (Ascarya & Sakti, 2021; OJK, 2025). Recent empirical evidence suggests that this continued preference for debt-based financing is driven less by Shariah considerations than by institutional governance challenges associated with profit-and-loss-sharing contracts, particularly monitoring costs, agency problems, and risk-control capacity within Islamic microfinance institutions serving high-risk sectors (~~Karim, Tarazi, & Reille, 2008; Abdul-Rahman, Latif, Muda, & Abdullah, 2014; Rashid,~~

[Akmal, & Shah, 2024](#)). This pattern is particularly pronounced in high-risk livelihood sectors such as fisheries and agriculture, where profit-sharing contracts would appear most appropriate. Existing studies commonly attribute this outcome to operational complexity, monitoring costs, moral hazard, and the information asymmetry inherent in profit-and-loss-sharing arrangements (Abdul-Rahman, Latif, Muda, & Abdullah, 2014). Recent studies further confirm that the limited adoption of profit-and-loss sharing contracts is not merely a technical issue, but is closely related to institutional capability, governance quality, and risk management infrastructure within Islamic financial systems (e.g., Mohamed & Elgammal, 2023; Aspiranti, Ali, Sudrajad, & Rusgianto, 2023).

While these explanations are analytically valid, they tend to frame risk as an external constraint to be avoided rather than as an institutional challenge to be governed. Much of the Islamic finance literature implicitly assumes that adoption will occur either because financial products comply with Shariah principles or because they improve access to capital. Such assumptions overlook a critical dimension of financial decision-making in high-risk environments: whether financial institutions possess the institutional capacity to manage uncertainty, distribute losses fairly, and provide protection during adverse conditions. For coastal households, financial adoption decisions are rarely driven solely by religious alignment or capital availability. Instead, they reflect rational evaluations of institutional performance under risk (North, 2018; Ménard & Shirley, 2022).

This study advances a different analytical perspective by conceptualizing mudharabah adoption as an outcome of institutional risk governance. Drawing on institutional economics and risk governance theory, it argues that Islamic financial contracts function effectively only when embedded within institutions capable of translating normative principles into operational mechanisms that manage livelihood risk (Renn, 2017). From this perspective, access to capital and perceived fairness are not direct drivers of adoption, but institutional inputs that shape the effective role of financial intermediaries. This institutional role enables the development of risk-management practices to address weather shocks and price volatility, which, in turn, foster institutional trust. Adoption intention thus emerges as the outcome of a sequential institutional process rather than an immediate behavioral response.

Indonesia's coastal regions provide a particularly relevant empirical setting for examining this mechanism. The country's vast archipelagic geography generates substantial heterogeneity in infrastructure quality, market integration, and asset ownership structures, all of which condition institutional effectiveness. Coastal communities in mainland areas often face different institutional environments than those in remote islands, while individual and shared asset ownership arrangements shape exposure to risk and reliance on financial institutions. Understanding how Islamic microfinance operates across these contexts is therefore essential for moving beyond uniform financial inclusion strategies toward risk-sensitive institutional design (World Bank Group, 2021).

Importantly, the institutional logic developed in this study is not confined to a single type of Islamic financial institution. Mudharabah contracts are theoretically applicable across Islamic commercial banks, BPRS, Islamic pawnshops, and other Shariah-compliant intermediaries. The analytical framework proposed here thus captures a generalizable institutional mechanism rather than an institution-specific effect. [The empirical focus on BMTs \(community-based Islamic microfinance cooperatives\) and BPRS \(Islamic rural banks\) reflects the Indonesian](#)

coastal context, where a large proportion of fishers remain unbankable or underbanked and where these institutions have historically played a more prominent role due to their geographical proximity, operational flexibility, and strong social embeddedness within local communities. The empirical focus on BMTs and BPRS reflects the Indonesian coastal context, where a large proportion of fishers remain unbankable or underbanked and where micro-level Islamic institutions have historically played a more prominent role due to their proximity, flexibility, and social embeddedness (Karim, Tarazi, & Reille, 2008; Ascarya & Sakti, 2021).

By reframing mudharabah adoption through the lens of institutional risk governance, this study contributes to the Islamic finance literature in three ways. Unlike conventional behavioural adoption models such as the Technology Acceptance Model (TAM) and the Theory of Planned Behaviour (TPB), which explain adoption primarily through individual perceptions, attitudes, and behavioural intentions, this study conceptualizes mudharabah adoption as an institutional governance outcome emerging from organizational risk-management capability, institutional trust, and the effective governance of livelihood uncertainty. First, it moves beyond dominant adoption models that emphasize access to capital, religiosity, or attitudinal factors by demonstrating that adoption decisions in high-risk environments are primarily shaped by institutional capacity to govern uncertainty. By reframing mudharabah adoption through the lens of institutional risk governance, this study contributes to the Islamic finance literature in three ways. First, it moves beyond dominant adoption models that emphasize access to capital, religiosity, or attitudinal factors, by demonstrating that adoption decisions in high-risk environments are primarily shaped by institutional capacity to govern uncertainty. Second, it reconceptualizes trust not as an exogenous antecedent, as commonly assumed in prior studies on Islamic financial adoption, but as an endogenous outcome of institutional performance in managing livelihood risks. Third, it introduces a context-sensitive institutional framework that captures how risk governance mechanisms operate unevenly across geographical and ownership structures in coastal economies. In doing so, this study provides a more nuanced explanation of why profit-and-loss-sharing contracts such as mudharabah remain underutilized despite their theoretical suitability for high-risk sectors.

2. Theoretical Review and Hypothesis Development

2.1 Coastal Livelihoods, Structural Risk, and the Limits of Access-Based Finance

Coastal livelihoods (particularly small-scale fisheries) are structurally embedded in environments characterized by high uncertainty and covariate risk. Income volatility driven by weather shocks, seasonal cycles, and fluctuating market prices is not an incidental feature of coastal economies but a defining structural condition (Allison & Ellis, 2001; Allison, et al., 2012; FAO, 2018). Unlike idiosyncratic risks, these shocks affect entire communities simultaneously, rendering individual coping mechanisms and informal insurance arrangements largely ineffective.

In such contexts, finance plays a fundamentally different role compared to stable economic sectors. Rather than functioning primarily as a growth-enhancing input, financial arrangements operate as mechanisms for risk absorption, loss distribution, and livelihood stabilization (Béné, et al., 2018). However, empirical studies consistently show that formal financial inclusion in coastal areas remains limited, even where financial institutions are geographically accessible

(Karlan & Goldberg, 2011; Karlan, Ratan, & Zinman, 2014). This persistence of exclusion suggests that the core challenge lies not in access per se, but in institutional misalignment between financial products and the risk structure of coastal livelihoods.

Financial instruments that assume regular income streams, individualized production, and low risk covariance tend to be poorly suited to coastal economies. As a result, they are often underutilized or actively avoided by fishers and coastal households, regardless of nominal availability (Cohen, et al., 2019). These patterns point to the need for an institutional perspective that places risk governance (rather than access alone) at the center of financial adoption.

2.2 Mudharabah Beyond Normativity: From Shariah Contract to Risk-Governance Instrument

Within Islamic finance, mudharabah is normatively positioned as an ideal contract due to its emphasis on profit-and-loss sharing, distributive justice, and ethical alignment between capital and labor (Iqbal & Mirakhor, 2017; Mirakhor, Iqbal, & Sadr, 2020). In principle, these features make mudharabah particularly suitable for high-risk livelihood sectors, including fisheries and other coastal activities, where returns are uncertain and exogenous shocks frequently lead to losses.

However, empirical evidence consistently reveals a gap between normative ideals and institutional practice. Across Islamic banking and microfinance sectors, mudharabah remains marginal relative to debt-based instruments, even in contexts where profit-sharing appears theoretically superior (Beck, Pamuk, Ramrattan, & Uras, 2018; Ascarya & Sakti, 2021). Conventional explanations emphasize moral hazard, monitoring costs, and information asymmetry, portraying risk as an obstacle that institutions seek to minimize or avoid.

This study adopts a different stance by reframing mudharabah not merely as a Shariah-compliant contract, but as a potential instrument of institutional risk governance. From this perspective, mudharabah is adopted not because of its religious or ethical symbolism, but because institutions are able (or unable) to operationalize its risk-sharing principles into credible governance mechanisms. Recent studies increasingly support this view, showing that Islamic financial adoption hinges on institutional capability rather than normative preference alone (Hassan, Aliyu, Huda, & Rashid, 2019).

More recent empirical evidence further reinforces this argument by demonstrating that governance quality and institutional risk management capacity play a decisive role in shaping Islamic banking behavior and the effectiveness of risk-sharing practices (e.g., Rashid, Akmal, & Shah, 2024; Islam, Islam, Hassan, & AlHalaseh, 2025; Boulanouar, Grassa, Naouar, & El Ammari, 2026).

2.3 Access to Capital and Perceived Fairness as Institutional Inputs

Institutional economics emphasizes that resources and norms do not generate outcomes independently; rather, they operate as institutional inputs that shape organizational effectiveness, legitimacy, and governance capacity (North, 2018). In high-risk coastal livelihoods, access to capital is not merely defined by availability but also by timeliness, affordability, and procedural accessibility, which together determine whether financial arrangements can serve as mechanisms for managing uncertainty. Timely capital disbursement enables fishing operations to align with narrow seasonal windows, while high administrative

costs, complex procedures, or delayed approval effectively shift risk back to producers, undermining the protective role of financial institutions (Obaidullah & Khan, 2008).

Behavioral and distributive justice theories further suggest that perceived fairness plays a central role in shaping compliance, commitment, and willingness to engage in long-term contractual relationships under uncertainty (Kahneman, Knetsch, & Thaler, 1986; Tyler, 2019). In Islamic microfinance, fairness is operationalized through transparent contract terms, clearly defined profit-and-loss-sharing arrangements, and equitable treatment of adverse outcomes. These dimensions are particularly salient in coastal contexts, where income volatility and covariate risk heighten sensitivity to perceived injustice and opportunistic behavior.

Crucially, neither access to capital nor perceived fairness is sufficient on its own to induce adoption of mudharabah financing. Their influence materializes only when financial institutions can translate affordable access and distributive justice into a coherent institutional role that governs risk effectively. From this perspective, access and fairness function as enabling conditions that strengthen institutional capacity, rather than as direct behavioral triggers. Accordingly, this study conceptualizes access to capital and perceived fairness as antecedents of institutional role rather than immediate determinants of adoption intention.

H1: Access to capital positively influences the institutional role of Islamic financial institutions.

H2: Perceived fairness of profit-sharing positively influences the institutional role of Islamic financial institutions.

2.4 Institutional Role and the Governance of Livelihood Risk

The institutional role of Islamic microfinance institutions in coastal settings extends beyond financial intermediation. In practice, institutions such as BMTs and BPRS frequently operate as hybrid governance structures, combining financing, coordination, contract enforcement, and informal risk-pooling mechanisms. Institutional theory suggests that such multifunctional roles become especially critical in environments characterized by weak formal enforcement and high uncertainty, where market-based and state-based governance mechanisms are insufficient (Ostrom, 2015; Ménard & Shirley, 2022).

Effective institutional roles reduce transaction costs and uncertainty by standardizing contracts, clarifying contractual obligations, and providing collective mechanisms to address shared risks. Contract clarity (reflected in transparency, comprehensibility, and the communication of contractual terms) serves as a core governance mechanism that aligns expectations and mitigates perceived opportunism under conditions of income volatility and asymmetric information (Gefen, 2000; North, 2018). In coastal livelihoods, this institutional function is particularly salient, as financial arrangements must accommodate weather disruptions, price volatility, and asset-related losses that individual households cannot efficiently absorb on their own (Pomeroy, Parks, Mrakovcich, & LaMonica, 2016; Townsend, 2020).

Accordingly, the strength of an institution's role is expected to directly shape the quality and credibility of risk-management practices available to its members. Institutions that govern effectively through clear contracts and coordinated arrangements are better positioned to design and implement mechanisms to manage livelihood risk, thereby translating abstract risk-sharing principles into operational practices.

H3: The institutional role of Islamic financial institutions positively influences risk-management practices.

2.5 Risk-Management Practices and the Formation of Institutional Trust

Trust does not emerge exogenously; it is built through repeated institutional performance, particularly under conditions of stress and uncertainty (Rousseau, Sitkin, Burt, & Camerer, 1998). In high-risk livelihoods, trust is closely tied to whether institutions can deliver protection, coordination, and predictability during adverse events.

Recent research in Islamic finance and digital financial adoption underscores that trust increasingly arises from demonstrated institutional capability, especially in managing environmental, operational, and market risks (Abedifar, Hasan, & Tarazi, 2016; Venkatesh, Morris, Davis, & Davis, 2003). Recent empirical studies also suggest that trust in Islamic financial institutions increasingly depends on demonstrated institutional capability in managing risk, rather than solely on reputational signals or formal Shariah compliance (e.g., Alam, Rahman, Runy, Adedeji, & Hassan, 2022; Abdulrahman, Ebrahimi, & Al-Najjar, 2024; Touti & Taïb, 2024). When institutions exhibit credible risk-management mechanisms (such as contingency arrangements, collective marketing, or loss-sharing protocols), stakeholders are more likely to perceive them as reliable partners rather than mere capital providers.

In the Indonesian context, institutional trust is also reinforced by the presence of a formal Shariah governance framework. Islamic financial institutions operate under the guidance of the National Sharia Council of the Indonesian Council of Ulama (DSN-MUI), which issues fatwas and Shariah standards governing Islamic financial contracts. Compliance with these standards provides an additional source of institutional legitimacy beyond operational performance.

Within Islamic finance, takaful represents a formal institutional mechanism for risk sharing that complements financing contracts by providing structured protection against adverse events. Rizwan & Al-Malkawi (2024) emphasize that takaful enhances institutional credibility not only through its availability, but also through the clarity, transparency, and timeliness of claims procedures. Clear takaful arrangements and predictable compensation processes reduce uncertainty and reinforce perceptions of institutional responsibility, thereby strengthening trust among participants exposed to livelihood risks.

This study, therefore, positions institutional trust as a mediated outcome of risk governance rather than an exogenous antecedent of adoption.

H4: Risk-management practices positively influence institutional trust.

2.6 Institutional Trust and Adoption Intention

Behavioral adoption theories consistently identify trust as a central determinant of intention under uncertainty (Ajzen, 1991). In the context of mudharabah microfinance, adoption entails long-term commitment, income sharing, and disclosure, decisions that inherently involve risk exposure. When trust is grounded in observable institutional performance, adoption intention reflects rational expectations regarding risk mitigation and livelihood stability, rather than religious affinity alone. Thus, adoption emerges as the outcome of an institutional process in which risk is effectively governed.

H5: Institutional trust positively influences the adoption intention of mudharabah financing.

2.7 Positioning and Theoretical Contribution

This study advances the literature in three key ways. First, it reframes mudharabah adoption as an outcome of institutional risk governance, shifting attention from normative contract features to institutional functionality under uncertainty. Second, it reconceptualizes trust as an endogenous construct emerging from risk-management performance rather than as an exogenous social trait. Third, by focusing on coastal livelihoods and incorporating contextual heterogeneity, it demonstrates that institutional risk governance operates unevenly across geographic and ownership contexts. By integrating insights from Islamic finance, institutional economics, and risk governance theory, this study offers a more analytically rigorous and policy-relevant explanation of financial adoption in high-risk livelihood environments.

3. Methodology

3.1 Research Design and Analytical Approach

This study adopts a quantitative explanatory research design to examine how mudharabah adoption in coastal livelihoods emerges through a sequence of institutional risk-governance mechanisms. Rather than treating adoption as a direct behavioral response to access or religious compliance, the study conceptualizes adoption intention as the outcome of institutional performance under uncertainty, involving institutional role enactment, risk-management practices, and trust formation.

Given the study's emphasis on theory-driven mediation, contextual heterogeneity, and prediction-oriented objectives, Partial Least Squares Structural Equation Modeling (PLS-SEM) is employed as the primary analytical technique. PLS-SEM is particularly appropriate for this research for several reasons. First, the proposed model involves multiple latent constructs linked through a serial mediation structure, which is analytically demanding under covariance-based SEM, especially when theoretical development is prioritized over model fit optimization (Hair, 2014; Sarstedt, Ringle, & Hair, 2022). Second, the study focuses on explained variance and predictive relevance, consistent with PLS-SEM's strengths in assessing complex institutional mechanisms (Shmueli, Ray, Estrada, & Chatla, 2016).

Third, the data are drawn from heterogeneous coastal populations characterized by non-normal distributions, diverse livelihood strategies, and unequal institutional access. PLS-SEM is more robust than covariance-based SEM under such conditions (Hair, 2014). Finally, PLS-SEM enables multi-group analysis (MGA) to examine whether institutional risk-governance pathways operate differently across geographic and asset-ownership contexts, which is central to the study's research questions.

All analyses were conducted using SmartPLS 4, following established methodological guidelines for measurement validation, structural model assessment, and multi-group comparison.

3.2 Population, Sampling, and Data Collection

The study population comprises coastal economic actors in Indonesia engaged in fisheries and related livelihoods, including offshore and coastal fishers, aquaculture workers, boat and gear owners, and non-fishery coastal workers. These groups are structurally exposed to weather

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uncertainty, seasonal income fluctuations, and market price volatility, making them a relevant empirical setting for examining Islamic microfinance as an institutional mechanism for risk governance.

Data were collected via a structured questionnaire, yielding 440 valid responses. This sample size exceeds the minimum requirements for PLS-SEM based on both the traditional 10-times rule and more recent statistical power analyses (Hair, 2014; Kock & Hadaya, 2018). Respondents were selected through purposive sampling, ensuring that participants had prior exposure to or awareness of Islamic microfinance institutions operating in their communities.

To capture contextual heterogeneity, respondents were classified into two analytically relevant dimensions:

1. Geographical domicile (mainland coastal villages vs. remote small islands), and
2. Ownership of fishing assets (individual ownership vs. shared ownership).

These classifications reflect structural differences in institutional access, risk exposure, and bargaining power, and form the basis for subsequent multi-group analyses.

3.3 Measurement of Constructs

All constructs were operationalized as reflective latent variables, consistent with institutional theory and behavioral adoption literature. Measurement items were adapted from well-established studies and contextualized to coastal and Islamic microfinance settings.

- Access to Capital captures perceived timeliness, adequacy, affordability, and procedural ease in accessing financing.
- Perceived Fairness of Profit-Sharing reflects distributive justice, transparency, and clarity about risk-sharing in mudharabah arrangements.
- Institutional Role represents the functional capacity of Islamic financial institutions to perform coordination, contract clarification, and governance functions beyond mere fund provision.
- Risk-Management Practices measure institutional mechanisms addressing weather-related disruptions and market price volatility.
- Institutional Trust captures confidence in institutional competence, integrity, and reliability.
- Adoption Intention reflects the willingness to engage with or continue using mudharabah-based financing.

Table 1 Operational Variabel

Variable	Dimensions	Indicators (sample items)	Key References
Access to Capital	Timeliness	AC.1 Mudharabah financing is disbursed before the fishing season begins. AC.2 No significant delay in capital release.	(Beck, Pamuk, Ramrattan, & Uras, 2018; Ascarya & Sakti, 2021)
	Adequacy	AC.3 Financing amount meets total operating cost for a typical fishing trip. AC.4 Capital supports both fuel and gear maintenance.	

	Cost & Ease	AC.5 Administrative fees and profit-sharing ratios are affordable and Shariah-compliant. AC.6 Application process is simple and quick.	(Obaidullah & Khan, 2008)
Perceived Fairness of Profit-Sharing	Price/Revenue Fairness	PF.1 Profit share between owner and crew is equitable. PF.2 No hidden deductions from the agreed ratio.	(Kahneman, Knetsch, & Thaler, 1986; Pomeroy, Parks, Mrakovcich, & LaMonica, 2016)
	Transparency	PF.3 All costs and revenues are clearly documented. PF.4 Disbursement of crew share is timely and accurate.	(Abedifar, Hasan, & Tarazi, 2016)
	Risk Sharing	PF.5 Weather-related losses are shared according to contract. PF.6 Agreement specifies handling of market-price shocks.	(Ayub, 2009)
Institutional Trust	Reputation & Governance	IT.1 Fishers believe the BMT/cooperative is trustworthy. IT.2 Past experiences with BMT enhance confidence.	(Rousseau, Sitkin, Burt, & Camerer, 1998; Ascarya & Sakti, 2021)
	Shariah Compliance	IT.3 <u>Confidence that contracts comply with fatwas issued by the Indonesian National Sharia Council (DSN-MUI). Confidence that contracts meet DSN-MUI fatwa-</u>	(Khan & Bhatti., 2008)
Institutional Role	Shariah supervisory board	IR.1 Presence of an active Shariah supervisory board.	(Khan & Bhatti., 2008)
	Contract Clarity	IR.2 Contract terms are easy to understand. IR.3 All clauses are explained before signing.	(Gefen, 2000)
Risk-Management Practices (X4)	Weather & Seasonal Risk	RM.1 Financing includes contingency for bad-weather downtime. RM.2 There is a reserve mechanism for storm damage.	(Townsend, 2020)
	Market Price Volatility	RM.3 Mechanism exists to mitigate sudden price drops (e.g., collective marketing). RM.4 Access to storage/ice facilities reduces forced low-price sales.	(Pomeroy, Parks, Mrakovcich, & LaMonica, 2016)
	Insurance/Takaful	RM.5 Availability of fisheries takaful (mutual aid). RM.6 Claims process is clear and timely.	(Rizwan & Al-Malkawi, 2024)
Adoption Intention (Y)	Intention to Use	Y1.1 Fisher intends to join the mudharabah scheme next season. Y1.2 Fisher perceives mudharabah as better than the current informal system.	(Ajzen, 1991; Venkatesh, Morris, Davis, & Davis, 2003)
	Recommendation	Y2.1 Fisher will recommend the scheme to peers. Y2.2 Community leaders encourage participation.	(Davis, 1989)

Source: Author developed based on the theoretical framework and recent empirical studies

All indicators were measured using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The full operationalization of variables and indicators is presented in Table 1.

3.4 Measurement Model Evaluation

The measurement model was assessed according to PLS-SEM best practices, including indicator reliability, internal consistency, and convergent validity (Hair et al., 2019). Indicator reliability was established through standardized loadings exceeding the recommended threshold of 0.70. Internal consistency was evaluated using Composite Reliability (CR), which provides a more accurate reliability estimate under PLS estimation than Cronbach's alpha.

Convergent validity was assessed using Average Variance Extracted (AVE), with all constructs exceeding the minimum threshold of 0.50. Although the Cronbach's alpha value for the Institutional Role construct is relatively low, its CR and AVE values exceed acceptable levels.

This approach is consistent with methodological recommendations emphasizing CR and AVE over alpha, particularly for constructs with a limited number of indicators (Raykov, 2001; Hair, 2014). This is particularly relevant in this study, where the Institutional Role construct captures complex governance functions that are not expected to be perfectly internally homogeneous, thus making composite reliability a more appropriate indicator than Cronbach's alpha.

3.5 Structural Model Assessment

The structural model was evaluated using standardized path coefficients, t-values obtained through bootstrapping with 5,000 subsamples, and coefficients of determination (R^2). Statistical significance was assessed at the 1% and 5% levels.

Consistent with the study's theoretical framing, emphasis was placed on explanatory power and effect magnitudes, rather than direct-path dominance. The proposed sequential structure (from institutional role to risk-management practices, institutional trust, and adoption intention) allows testing mechanisms of institutional mediation, aligning with the conceptualization of mudharabah adoption as an outcome of institutional risk governance rather than immediate behavioral choice (Shmueli, Ray, Estrada, & Chatla, 2016).

3.6 Model Fit and Collinearity Diagnostics

To ensure robustness, collinearity and overall model fit diagnostics were examined. Collinearity was assessed using Variance Inflation Factors (VIF), with all indicator-level values remaining well below the conservative threshold of 3.3, indicating no multicollinearity concerns (Kock & Hadaya, 2018).

Model fit was evaluated using the Standardized Root Mean Square Residual (SRMR) and Normed Fit Index (NFI), as recommended for PLS-SEM applications. The SRMR value for the saturated model falls within acceptable limits, indicating that the model adequately reproduces the observed correlation matrix. NFI values suggest reasonable incremental fit, consistent with the exploratory and prediction-oriented nature of the analysis.

3.7 Multi-Group Analysis (MGA)

To examine whether institutional risk-governance mechanisms operate differently across contexts, a PLS-based Multi-Group Analysis (MGA) was conducted by domicile and asset ownership. Prior to MGA, measurement invariance was assessed using the MICOM procedure, ensuring configural and compositional invariance across groups (Henseler, Ringle, & Sarstedt, 2016).

Following invariance confirmation, group-specific path coefficients were compared using non-parametric bootstrapping. This approach allows for identifying structural differences in institutional mechanisms without imposing distributional assumptions, making it particularly suitable for heterogeneous coastal populations.

4. Results

4.1 Overview of Empirical Findings

This section reports the empirical results of the PLS-SEM analysis and multi-group comparisons. Consistent with the institutional risk governance framework developed in Section

2 and operationalized in Section 3, the results are presented sequentially, beginning with respondent characteristics, followed by measurement validation, structural relationships, and contextual heterogeneity. This structure allows the findings to be interpreted not merely as statistical associations, but as institutional mechanisms through which risk management shapes adoption behavior.

4.2 Respondent Demographic Profile

Table 2 Demographic Characteristics of Respondents (n = 440)

Variable	Category	Frequency	Percentage (%)
Gender	Male	312	72.6
	Female	128	27.4
Age	< 25 years	11	2.6
	25–34 years	86	20.0
	35–44 years	196	45.6
	45–54 years	130	30.2
	> 55 years	17	4.0
Education	Elementary	26	6.0
	Junior High	56	13.0
	High School	296	68.8
	University	62	14.4
Occupation	Offshore capture fishers	220	51.2
	Coastal fishers	94	21.9
	Boat/gear owners	55	12.8
	Aquaculture	32	7.4
	Non-fishery coastal work	28	6.5
Household Status	Dual-income households	310	72.1
	Full fishing households	107	24.9
	Crew/ABK	11	2.6
	Seasonal fishers	12	2.8
Location	Mainland coastal villages	277	64.4
	Remote small islands	82	19.1
	Tourism-integrated coastal areas	48	11.2
	Estuarine areas	33	7.7
Asset Ownership	Individual ownership	146	34.0
	Joint ownership	194	45.1

No ownership	100	23.3
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Source: Author's Own Work

Table 2 summarizes the demographic and livelihood characteristics of the respondents. The sample is dominated by male respondents in the prime productive age range (35–54 years), reflecting the gendered, labor-intensive nature of capture fisheries. Educational attainment is largely at the high school level, indicating moderate human capital but limited formal exposure to financial literacy programs.

Occupationally, more than 70% of respondents are engaged in capture fisheries, either offshore or coastal, sectors that are inherently exposed to weather uncertainty, seasonal income volatility, and price shocks. The prevalence of dual-income households (72.1%) further indicates the use of adaptive risk-coping strategies at the household level. Spatially, while most respondents reside in mainland coastal villages, a substantial proportion live in remote small islands where access to infrastructure and formal institutions is limited. Asset ownership patterns are predominantly shared or collective, underscoring the importance of institutional coordination and risk-sharing arrangements in coastal economic systems.

4.3 Measurement Model Evaluation

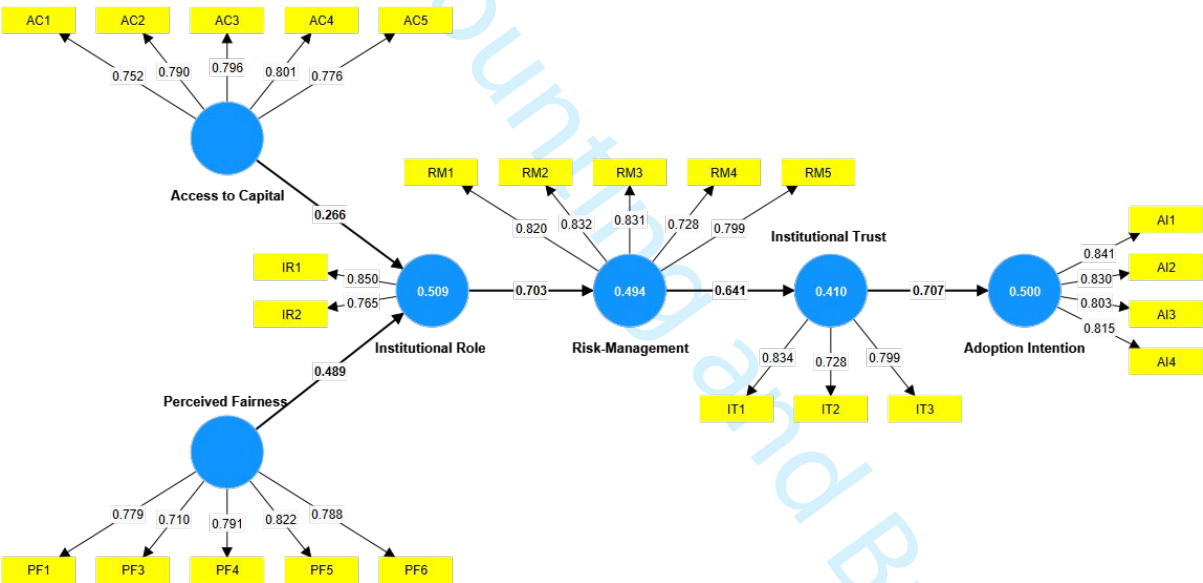


Figure 1 Measurement Model

Table 3 Measurement Model Evaluation and Reliability Statistics

Construct	Indicator	Loading	Cronbach's α	CR (pc)	AVE
Access to Capital	AC1–AC5	0.752–0.801	0.843	0.888	0.613
Adoption Intention	AI1–AI4	0.803–0.841	0.842	0.893	0.677
Institutional Role	IR1–IR2	0.765–0.850	0.474	0.790	0.654
Institutional Trust	IT1–IT3	0.728–0.834	0.699	0.831	0.622
Perceived Fairness	PF1, PF3–PF6	0.710–0.822	0.837	0.885	0.607
Risk-Management	RM1–RM5	0.728–0.832	0.862	0.900	0.645

Source: Author's Own Work

The measurement model demonstrates satisfactory reliability and convergent validity across all constructs (Table 3). All indicator loadings exceed the recommended threshold of 0.70, confirming that the observed variables adequately capture their respective latent constructs.

Composite reliability (CR) values range from 0.790 to 0.900, while AVE values exceed 0.50 for all constructs, indicating internal consistency and convergent validity. Although Cronbach's alpha for the Institutional Role construct is relatively low, its CR and AVE values exceed acceptable thresholds. This is consistent with methodological recommendations in PLS-SEM, particularly for constructs capturing multidimensional institutional functions that are measured with parsimonious indicators.

4.4 Structural Model Results: Institutional Risk Governance Pathways

Table 4 Structural Path Coefficients and Explained Variance

Panel A. Structural Path Coefficients				
Structural Path	β (O)	t-value	p-value	
Access to Capital $\rightarrow$ Institutional Role	0.266	4.616	0.000	
Perceived Fairness $\rightarrow$ Institutional Role	0.489	7.940	0.000	
Institutional Role $\rightarrow$ Risk-Management	0.703	17.480	0.000	
Risk-Management $\rightarrow$ Institutional Trust	0.641	12.138	0.000	
Institutional Trust $\rightarrow$ Adoption Intention	0.707	14.869	0.000	
Panel B. Explained Variance				
Endogenous Construct	R ²	Adjusted R ²		
Institutional Role	0.509	0.506		
Risk-Management	0.494	0.493		
Institutional Trust	0.410	0.409		
Adoption Intention	0.500	0.499		

Source: Author's Own Work

Table 4 reports the structural path coefficients and explained variance of the endogenous constructs. Overall, the results provide strong empirical support for the proposed serial institutional risk governance mechanism.

Access to Capital and Perceived Fairness jointly explain 50.9% of the variance in Institutional Role, indicating that institutional effectiveness is shaped not only by financial adequacy but also by distributive justice in profit-sharing arrangements. Notably, Perceived Fairness exhibits a stronger effect, suggesting that legitimacy and perceived equity are foundational to institutional authority in high-risk coastal contexts.

The Institutional Role construct exerts a substantial influence on Risk-Management Practices ($\beta = 0.703$), confirming that risk mitigation mechanisms (such as seasonal adjustments, collective marketing, and contingency arrangements) are not individual strategies but institutionally governed processes. Risk-management practices, in turn, significantly enhance

Institutional Trust ($\beta = 0.641$), highlighting trust as an outcome of demonstrated risk-handling capacity rather than mere reputational claims.

Finally, Institutional Trust explains 50.0% of the variance in Adoption Intention, underscoring that adoption of mudharabah-based financing is ultimately a risk-informed institutional decision, not solely a financial choice. The high R^2 values across endogenous constructs indicate strong explanatory power of the proposed model in capturing institutional dynamics under uncertainty.

Table 5. Specific Indirect Effects for the Full Serial Mediation Model

Full Serial Mediation Path	β	t-value	p-value	BCa 95% Confidence Interval
Access to Capital → Institutional Role → Risk-Management Practices → Institutional Trust → Adoption Intention	0.085	3.088	0.002	0.042 – 0.148
Perceived Fairness → Institutional Role → Risk-Management Practices → Institutional Trust → Adoption Intention	0.156	3.939	<0.001	0.085 – 0.243

Source: Author's Own Work

The specific indirect effects provide additional support for the proposed full serial mediation mechanism. As shown in Table 5, both Access to Capital ($\beta = 0.085$, $t = 3.088$, $p = 0.002$) and Perceived Fairness ($\beta = 0.156$, $t = 3.939$, $p < 0.001$) exert significant indirect effects on Mudharabah Adoption Intention through the sequential pathway comprising Institutional Role, Risk-Management Practices, and Institutional Trust. Furthermore, the bias-corrected 95% confidence intervals exclude zero for both mediation chains, confirming the statistical significance of the proposed institutional risk governance mechanism. These findings reinforce the argument that financial access and distributive fairness influence adoption primarily through institutional capabilities rather than through direct behavioural responses.

4.5 Model Fit and Collinearity Diagnostics

Collinearity diagnostics indicate no multicollinearity issues, with all VIF values well below the conservative threshold of 3.3. The SRMR value of 0.067 suggests an adequate approximation between the observed and model-implied correlation matrices. In contrast, the NFI value (0.794) reflects acceptable incremental fit given the prediction-oriented nature of PLS-SEM. Collectively, these diagnostics confirm the robustness and internal consistency of the estimated model.

4.6 Multi-Group Analysis: Contextual Unevenness of Risk Governance

4.6.1 MGA by Geographical Domicile

Table 6 MGA Results by Domicile

Structural Path	Mainland Coastal (β)	p-value	Remote Island (β)	p-value
Access to Capital → Institutional Role	0.299	0.000	0.148	0.111
Perceived Fairness → Institutional Role	0.489	0.000	0.495	0.000
Institutional Role → Risk-Management	0.759	0.000	0.576	0.000

Risk-Management → Institutional Trust	0.711	0.000	0.477	0.000
Institutional Trust → Adoption Intention	0.771	0.000	0.492	0.000

Source: Results are based on PLS-SEM estimation using SmartPLS 4.0.

The MGA results reveal clear contextual differences in institutional mechanisms across geographical settings. The effect of Access to Capital on Institutional Role is significant in mainland coastal areas but not in remote small islands, indicating that financial access alone is insufficient to activate institutional functions in geographically isolated contexts. In contrast, Perceived Fairness remains significant across both groups, underscoring its role as a universal institutional anchor.

Downstream paths (from Institutional Role to Risk Management, Institutional Trust, and Adoption Intention) are consistently stronger among mainland respondents. This suggests that institutional risk governance operates unevenly across spatial contexts, with infrastructural and organizational proximity amplifying institutional effectiveness.

4.6.2 MGA by Asset Ownership

Table 7 MGA Results by Asset Ownership

Structural Path	Individual (β)	Ownership p-value	Shared (β)	Ownership p-value
Access to Capital → Institutional Role	0.206	0.061	0.383	0.000
Perceived Fairness → Institutional Role	0.660	0.000	0.214	0.001
Institutional Role → Risk-Management	0.815	0.000	0.522	0.000
Risk-Management → Institutional Trust	0.775	0.000	0.324	0.000
Institutional Trust → Adoption Intention	0.808	0.000	0.461	0.000

Source: Results are based on PLS-SEM estimation using SmartPLS 4.0.

Ownership structure further moderates institutional pathways. Among respondents with shared ownership, Access to Capital plays a stronger role in shaping institutional effectiveness, reflecting higher coordination needs and collective risk exposure. Conversely, among individual owners, Perceived Fairness exerts a substantially stronger effect, indicating heightened sensitivity to distributive justice when asset control is concentrated.

Across both groups, the institutional role–risk management–trust sequence remains robust, although effect sizes are consistently larger among individual owners. This pattern suggests that asset control enhances the transmission of institutional risk governance into behavioral adoption decisions.

4.2 Discussion

4.2.1 Reframing Mudharabah Adoption as Institutional Risk Governance

The findings of this study provide strong empirical support for the argument advanced in the Introduction and Theoretical Review that mudharabah adoption in high-risk livelihoods should be understood as an institutional risk-governance outcome, rather than a direct behavioral response to financial access or religious alignment. This result extends prior adoption studies in Islamic finance that predominantly emphasize attitudes, perceived usefulness, or Shariah compliance as primary determinants of adoption (Davis, 1989; Ajzen, 1991; Venkatesh, Morris, Davis, & Davis, 2003).

Contrary to conventional microfinance and financial inclusion literature, which often assumes that increased access to capital directly stimulates participation (Beck & Demirguc-Kunt, 2006; Beck, Pamuk, Ramrattan, & Uras, 2018), this study demonstrates that access to capital does not directly translate into adoption intention. Beyond statistical significance, the magnitude of the estimated coefficients provides important economic insights. The relatively stronger effect of perceived fairness compared to access to capital suggests that, in high-risk coastal environments, legitimacy and distributive justice play a more decisive role than mere financial availability. Similarly, the substantial effect of institutional role on risk-management practices ($\beta = 0.703$) indicates that institutional capacity is not marginal but central in shaping how risks are operationally governed. These findings imply that improving access alone is unlikely to increase adoption unless it is accompanied by credible institutional mechanisms capable of absorbing and distributing livelihood risks. Instead, its influence is fully mediated through the institutional role of financial intermediaries and their risk-management practices. This finding challenges access-centric explanations and supports institutional economics arguments that institutions matter not because they provide resources, but because they structure uncertainty and expectations (Ostrom, 2015; North, 2018).

By empirically validating a serial mediation structure (Institutional Role $\rightarrow$ Risk-Management Practices $\rightarrow$ Institutional Trust $\rightarrow$ Adoption Intention) this study refines existing models of Islamic microfinance adoption (Abedifar, Ebrahim, Molyneux, & Tarazi, 2016; Ascarya & Sakti, 2021). Rather than treating trust as an exogenous antecedent, the results confirm that trust is endogenously produced through demonstrated institutional performance, particularly in managing livelihood risks. This supports relational and performance-based trust theories, which argue that trust emerges through repeated institutional reliability under conditions of uncertainty (Rousseau, Sitkin, Burt, & Camerer, 1998).

4.2.2 Risk Management as the Missing Institutional Mechanism

A key theoretical contribution of this study lies in identifying risk-management practices as the central institutional transmission mechanism linking institutional structure to adoption behavior. While previous studies acknowledge the importance of risk sharing in Islamic finance in principle (Khan & Bhatti., 2008; Ayub, 2009), empirical evidence on how risk-sharing mechanisms are operationalized at the micro-institutional level remains limited.

The strong effect of institutional role on risk-management practices observed in this study supports transaction cost and institutional governance theories, which emphasize that institutions reduce uncertainty by standardizing rules, coordinating actors, and providing collective solutions to risks that individual agents cannot efficiently manage on their own (Williamson, 1985; Townsend, 2020). In coastal livelihoods, where risks are covariate and systemic rather than idiosyncratic, individual coping strategies are insufficient, underscoring the importance of institutional governance.

Moreover, the significant impact of risk-management practices on institutional trust empirically substantiates the arguments of Abedifar, Ebrahim, Molyneux, & Tarazi (2016), who suggest that trust in Islamic financial institutions depends less on symbolic Shariah compliance and more on institutional capability to manage operational and environmental risks. This finding helps reconcile the long-standing paradox in Islamic microfinance literature, where profit-and-loss-sharing contracts are normatively idealized but rarely adopted in practice due to perceived risks and governance failures (Karim, Tarazi, & Reille, 2008).

4.2.3 Contextualizing Institutional Governance in Coastal Livelihoods

The multi-group analysis further enriches the theoretical contribution by demonstrating that institutional risk governance is context-dependent, rather than universally effective. The weaker effect of access to capital on institutional role in remote island contexts aligns with FAO (2018) and Pomeroy, Parks, Mrakovcich, & LaMonica (2016), who document that infrastructural isolation and weak institutional embeddedness constrain the effectiveness of formal financial interventions in small island economies.

At the same time, the consistently strong role of perceived fairness across geographical and ownership contexts reinforces distributive justice theory (Kahneman, Knetsch, & Thaler, 1986) and empirical findings in fisheries governance, which highlight fairness as a foundational element of cooperation and compliance in collective-action environments (Pomeroy, Parks, Mrakovcich, & LaMonica, 2016). This suggests that while financial access may be contingent on institutional infrastructure, fairness operates as a culturally embedded institutional norm that shapes legitimacy across contexts.

Differences across asset ownership structures further support institutional arguments that property rights and control over productive assets condition the effectiveness of governance mechanisms (North, 2018). The stronger institutional pathways observed among individual asset owners indicate that clearer ownership rights enhance the transmission of institutional risk governance into trust and adoption. In contrast, shared ownership introduces additional coordination and agency challenges.

4.2.4 Implications for Islamic Microfinance Theory

Taken together, these findings contribute to Islamic finance theory in three important ways. First, they empirically reposition mudharabah from a normative Shariah ideal to a functional governance instrument, whose adoption depends on institutional capacity rather than doctrinal preference. Second, they advance trust theory in Islamic finance by demonstrating that trust is an outcome of risk governance rather than merely a prerequisite. Third, by embedding the analysis in coastal livelihoods, the study responds to calls for more contextually grounded Islamic finance research that accounts for environmental and livelihood risks (Pomeroy, Parks, Mrakovcich, & LaMonica, 2016; Townsend, 2020).

Rather than rejecting existing theories, this study refines and extends them by integrating institutional economics, risk governance, and Islamic microfinance into a coherent explanatory framework. In doing so, it offers a more realistic and policy-relevant understanding of why mudharabah adoption remains limited, and under what institutional conditions it can be meaningfully scaled in high-risk environments.

5. Conclusion

This study advances the literature on Islamic finance adoption by repositioning mudharabah not as a normative contract choice or an access-driven financial decision, but as an institutional outcome of risk governance in high-uncertainty livelihood environments. By integrating institutional economics and risk governance theory into the analysis of Islamic microfinance, the study moves beyond explanations that rely solely on religious alignment, contractual ideals, or cost considerations. Instead, it demonstrates that adoption emerges from a sequential institutional process in which financial access and perceived fairness function as inputs that enable institutional roles, risk-management practices, and the endogenous formation of trust.

From a theoretical standpoint, the findings challenge dominant adoption models in Islamic finance that implicitly treat trust and intention as exogenous or attitudinal constructs. The results provide empirical support for a governance-based interpretation of adoption, in which trust is generated by demonstrated institutional performance in managing livelihood risk rather than through symbolic compliance or moral claims. This contributes to institutional theory by extending the concept of risk governance to Islamic financial intermediation, showing how profit-and-loss sharing contracts can operate as mechanisms for governing environmental and market uncertainty rather than merely redistributing financial returns.

The study also refines the Islamic microfinance literature by addressing the long-standing paradox between the normative suitability of mudharabah and its limited empirical uptake. Rather than attributing this gap solely to moral hazard, monitoring costs, or institutional weakness, the findings suggest that adoption depends on whether institutions can translate Shariah principles into credible, context-sensitive risk-management arrangements. In this sense, mudharabah is neither inherently attractive nor inherently flawed; its adoption is contingent upon institutional capacity to manage covariate risks and uphold distributive justice under uncertainty.

By situating the analysis in coastal livelihoods, the study contributes a context-sensitive perspective to development and finance research. Coastal economies represent an extreme case of income volatility and covariate risk, allowing the institutional logic of risk governance to be observed more clearly than in stable economic settings. The multi-group results further demonstrate that institutional risk governance does not operate uniformly across contexts, but is shaped by geography and asset ownership structures. This finding reinforces recent institutional arguments that governance effectiveness is contingent rather than universal, and cautions against one-size-fits-all approaches to Islamic financial inclusion.

Importantly, the theoretical framework developed in this study is not confined to a specific type of Islamic financial institution. While the empirical setting highlights the role of BMTs and BPRS in Indonesia, the institutional mechanisms identified (capital access, distributive fairness, risk governance, and trust formation) apply to a broad range of Islamic financial intermediaries operating in high-risk sectors. This enhances the study's external relevance and opens pathways for comparative research across sectors and institutional forms.

Beyond the Indonesian context, these findings have broader implications for Islamic finance in other developing economies facing similar structural risks, such as agriculture-based and informal sectors. The results suggest that scaling profit-and-loss-sharing instruments requires institutional investments in risk governance rather than relying solely on product innovation or

Shariah compliance. This highlights the need for a shift in policy orientation from financial inclusion as access expansion toward inclusion as institutional risk management.

The multi-group analysis further suggests that policy interventions should be differentiated according to geographical context. In remote island communities, where access to capital does not significantly strengthen the institutional role of Islamic financial institutions, expanding financing alone is unlikely to increase mudharabah adoption. Instead, policy efforts should prioritize strengthening community-based Islamic microfinance institutions, improving institutional risk-management capacity, enhancing digital financial connectivity, and fostering collaborative governance among Islamic financial institutions, local governments, and coastal organizations. These context-sensitive interventions are expected to strengthen institutional trust and improve the effectiveness of profit-and-loss-sharing financing in geographically isolated coastal communities.

This study contributes to the ongoing debate on Islamic finance and development by reframing adoption as an institutional achievement rather than an individual preference. It bridges Islamic finance theory, institutional economics, and risk governance, offering a more analytically robust and policy-relevant explanation of how Islamic financial contracts function in practice. Future research may build on this framework by examining longitudinal institutional adaptation, comparative sectoral dynamics, and the interaction between formal risk governance mechanisms and informal community institutions in shaping financial adoption under uncertainty.

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