
PROFIT LOSS SHARING FINANCING IN INDONESIA ISLAMIC RURAL BANKS: AN EVALUATION AMIDST GLOBAL UNCERTAINTY

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ABSTRACT

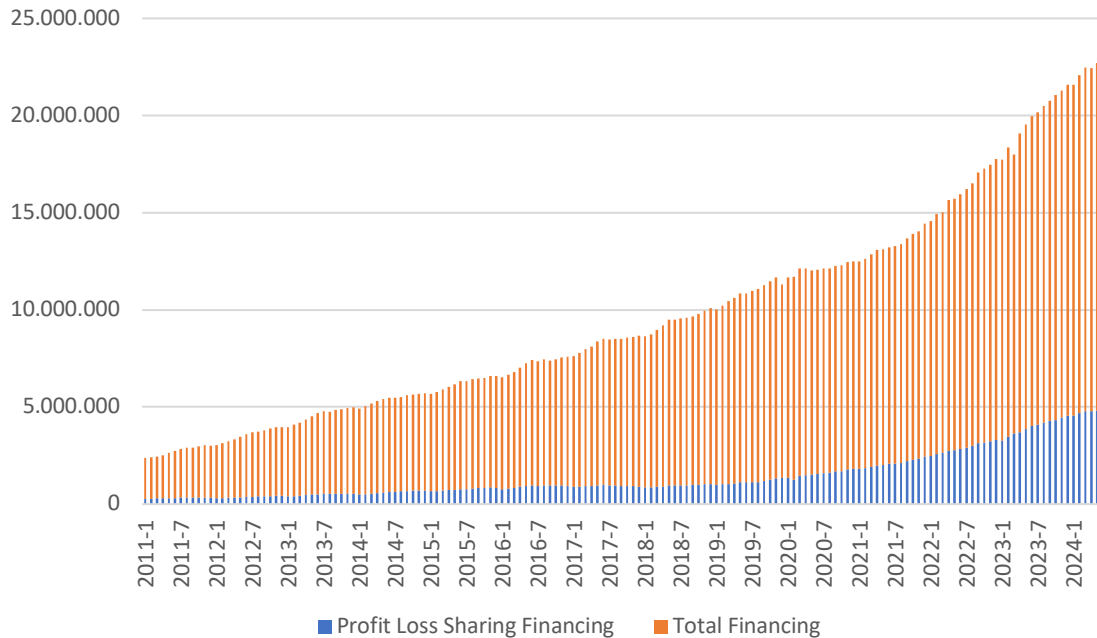
Although the Islamic banking industry has been developing for more than three decades, profit-loss sharing (PLS) financing has yet to secure a significant share of the overall financing portfolio. Against this backdrop, this study focuses on Indonesia's Islamic Rural Banks (IRBs), which play a crucial role in serving micro and small enterprises nationwide. A key challenge for these institutions is the rising global uncertainty, which heightens risks, complicates financing decisions, and may hinder the growth of PLS-based contracts. Using the Autoregressive Distributed Lag (ARDL) model, this study examines both the short-term dynamics and the long-term impacts of operational efficiency (BOPO), profitability (ROA), inflation rate, industrial production index (IPI), and the World Uncertainty Index on profit-loss sharing financing. The analysis employs monthly data spanning the period from 2011 to 2024. The findings indicate that a combination of bank-specific factors and macroeconomic conditions plays a critical role in shaping PLS financing decisions in the short term. However, in the long term, the sustainability of PLS financing is more strongly linked to overall economic growth. Conversely, global uncertainty does not exert a significant influence, suggesting that IRBs exhibit relative resilience to external shocks. It suggests that PLS financing is more closely associated with economic growth and specific banking conditions than with global uncertainty. This study provides several recommendations for IRBs to enhance the implementation and sustainability of PLS-based financing.

INTRODUCTION

As part of the national banking system (Setyowati, 2019) Islamic banks exhibit several fundamental differences in operational activities compared to conventional banks (Hanafi, 2021). One of the most notable distinctions is the implementation of profit-loss sharing (PLS) financing for banking activities. In this context, PLS financing functions as both a hallmark (Nugraheni & Alimin, 2022) and a defining feature (Hamza & Ben Jedidia, 2014) of Islamic banking, providing multiple advantages, such as ensuring fairness in financial transactions, promoting ethical investments, and creating mutually beneficial outcomes for all parties involved in financial agreements (Winarsih & Asokawati, 2019). Furthermore, empirical studies have demonstrated that PLS financing has a positive and significant impact on financial stability (Addury & Ramadhani, 2024; Othman et al., 2023).

From a theoretical perspective, PLS represents the ideal mode of financing in Islamic finance due to its alignment with *maqashid sharia* and its potential to advance economic justice, financial inclusion, and the core principles of Islamic banking practices (Ariffin et al., 2015). By linking returns to real economic activity rather than fixed interest payments, PLS financing encourages entrepreneurship, risk-sharing, and equitable wealth distribution (Fianto et al., 2018). According to Karim (2003), one of the notable advantages of PLS financing is its capacity to reduce the likelihood of financial crises. This advantage stems from its foundation in tangible, asset-backed transactions, in contrast to the predominance of financial assets in conventional banking (Muhammad & Nugraheni, 2021). These characteristics render PLS financing particularly relevant for developing economies that aim to empower micro-, small-, and medium-sized enterprises (MSMEs).

Despite more than three decades of Islamic banking operations, the implementation of PLS mechanisms in banking transactions remains limited (Risfandy et al., 2020). Currently, financing in Islamic banks is dominated by non-PLS contracts (Hidayat et al., 2020), with PLS-based financing representing only a relatively small proportion of sale-based financing (Nugraheni & Alimin, 2022). Globally, merely 0.5% of Islamic financing follows the PLS principle (Chong & Liu, 2009). This limited application highlights the persistent gap between the foundational ideals of Islamic finance and their practical realization, a gap that is particularly evident in the Indonesian context, as illustrated in Figure 1.



Source: Indonesian Financial Services Authority (2011-2024)

Figure 1. Trends in PLS Financing Relative to Total Financing in IRBs in Indonesia 2011-2024 (in million rupiah)

Previous studies have identified several factors contributing to the limited implementation of PLS financing, including higher liquidity risk (Hamza & Ben Jedidia, 2014) profit rate sensitivity (Umam et al., 2021), the effectiveness of the Sharia supervisory board (Yulianto & Solikhah, 2016), and complex operational procedures that diverge from their theoretical simplicity (Risfandy et al., 2020)(Risfandy et al., 2020). Other challenges include the lack of managerial control over PLS-based projects (Chong & Liu, 2009) and elevated risks related to financing quality, screening processes, and financial statement analysis (Diallo et al., 2015) (Nugraheni & Alimin, 2022) Scholars have also emphasized that both internal factors related to a bank's financial performance and broader macroeconomic conditions influence PLS financing (Amelia & Hardini, 2017; Arshed & Kalim, 2021; Effendi, 2018a; Ibrahim et al., 2022; Muhammad & Nugraheni, 2021). Specifically, Muhammad & Nugraheni (2021) found that the rate of return (RR), bank age, and capital adequacy ratio (CAR) significantly affect *mudharabah* financing. Ibrahim et al. (2022) observed that total assets and PLS deposits influence PLS financing, whereas Amelia & Hardini (2017) reported that third-party funds, exchange rates, and CAR exert a similar effect. Consistently, Effendi (2018) highlighted that third-party funds, non-performing financing (NPF), financing-to-deposit ratio (FDR), interest rates, and inflation impact PLS financing.

This omission is particularly striking given the inherently uncertain nature of PLS contracts and their exposure to both project- and market-level risks. Robiatun et al.,

(2024) argue that PLS financing can increase uncertainty costs due to irregular deposit flows, fluctuating financing demand, unpredictable income streams, and principal–agent issues that elevate risk exposure. Nonetheless, PLS financing is often considered more resilient during crises because it is linked to tangible assets rather than the financial assets typical of conventional banks (Muhammad & Nugraheni, 2021)

Given the close connection between PLS financing and economic uncertainty, this study uses the World Uncertainty Index (WUI) as a key measure. Derived from the frequency of the term “*uncertainty*” in the Economist Intelligence Unit’s quarterly country reports (Ahir et al., 2022) the WUI provides a nuanced, continuous assessment of economic conditions over time, capturing both stable periods and crises, unlike conventional dummy variables (Bilgin et al., 2021). Although previous research has examined factors influencing PLS financing, most studies have focused on Islamic Commercial Banks (ICBs) or Islamic Business Units (IBUs) (Amelia & Hardini, 2017; Effendi, 2018; Ibrahim et al., 2022), using annual data and overlooking global uncertainty as a key explanatory variable. This gap highlights a significant opportunity for further research. Islamic Rural Banks (IRBs) are particularly relevant given their critical role in Indonesia’s financial ecosystem, financing micro and small enterprises across diverse regions. Their distinctive position allows for a deeper understanding of how global uncertainty shapes PLS financing patterns.

The novelty of this study lies in incorporating the WUI into the analysis of PLS financing, an approach rarely applied in Indonesian Islamic banking research. Using monthly time-series data from 2011 to 2024 enables the study to capture multiple phases of economic fluctuation, including the post–global financial crisis recovery, the COVID-19 pandemic, and the recent period of heightened geopolitical uncertainty. This dataset is particularly suited to analyzing the dynamic relationship between global uncertainty and PLS financing. By addressing these gaps, this study seeks to answer the following question: How do internal bank factors, macroeconomic indicators, and global uncertainty influence the implementation of PLS financing in rural Islamic Banks? The findings contribute to the discourse on Islamic finance resilience and offer strategic insights for strengthening PLS-based financing amid rising global volatility.

LITERATURE REVIEW

PLS Financing

A profit-loss sharing (PLS) scheme is a financial arrangement in which both profits and losses are distributed between contracting parties according to pre-agreed terms. The core principles of this scheme are fairness and cooperation, with outcomes—whether profits or losses—shared proportionally based on each party’s role and

contribution (Nugraheni & Alimin, 2022). This mechanism contrasts with conventional banking, which relies on interest as a predetermined form of return. In PLS contracts, the Islamic bank acts as a business partner, bearing a portion of the business risk (Otoritas Jasa Keuangan (OJK), 2008).

In practice, two types of PLS contracts are commonly employed: *mudharabah* and *musharakah*. Under a *mudharabah* contract, the bank provides capital (*shahibul maal*), while the entrepreneur (*mudarib*) manages the business. Profits are shared according to a predetermined ratio, whereas losses are borne by the bank, provided they arise from normal business risks rather than managerial negligence (Muhammad & Nugraheni, 2021). Under a *musharakah* contract, both the bank and the client contribute capital as partners. Profits are distributed according to the agreed-upon ratio, while losses are shared proportionally based on each party's capital contributions (Risfandy et al., 2020).

These contracts promote risk sharing, uphold fairness, and foster sustainable partnerships in productive economic activities Arshed & Kalim, 2021Muhammad & Nugraheni, 2021Jedidia & Hamza, 2014) .

Bank-Specific Condition

Bank-specific conditions refer to the internal factors unique to each institution, including operational efficiency, management quality, and overall financial performance (Alsharari & Alhmoud, 2019). Varghese (2009) argues that productivity differences among banks are shaped by these internal conditions in combination with macroeconomic factors. In the context of PLS financing, several studies have examined internal determinants such as bank size, bank age, non-performing financing (NPF), capital adequacy ratio (CAR), operating expenses to operating income (BOPO), and return on assets (ROA) (Amelia & Hardini, 2017 Fathurrahman et al., 2021Effendi, 2018Muhammad & Nugraheni, 2021)These studies yield mixed results regarding the influence of these variables on PLS financing.

ROA measures a bank's profitability by assessing the income generated from its total assets. According to profitability theory, more profitable banks are better positioned to engage in risk-sharing financing because they possess stronger capital buffers and greater risk tolerance (Fathurrahman et al., 2021; Kasanah et al., 2022)However, empirical findings are inconsistent: Effendi (2018) reports that ROA has an insignificant effect, whereas Silvia et al. (2024) suggest that ROA significantly influences equity financing, as Islamic banks with higher profitability may rely more on equity-based financing to diversify their portfolio and maintain a robust balance sheet (Meslier et al., 2020)Despite these discrepancies, theory supports a positive association between profitability and PLS financing.

Hypothesis 1: ROA positively affects the PLS financing of rural Islamic Banks.

BOPO is a cost ratio that measures a bank's ability to manage operational costs relative to its operating income. According to Robiatun et al. (2024), operating costs have a significant positive effect on banks' net margins, highlighting their substantial role in financial performance. This underscores the importance of local Islamic banks to improve the effectiveness of their cost management practices. BOPO serves as an indicator of a bank's operational efficiency: A higher BOPO ratio reflects greater operational costs relative to income, implying inefficiency. According to banking efficiency theory, higher operational inefficiency, as indicated by a higher BOPO, reduces a bank's capacity to provide financing, including profit-loss sharing (PLS) contracts (Effendi, 2018). Therefore, a negative relationship between BOPO and PLS financing is expected.

Hypothesis 2: BOPO negatively affects the PLS financing of rural Islamic Banks.

Macroeconomic Condition

Macroeconomic variables reflect the overall conditions of the national economy. Islamic banking in Indonesia is highly sensitive to macroeconomic fluctuations (Musa et al., 2022). This study considers the inflation rate and the Industrial Production Index (IPI) as key macroeconomic indicators. Inflation represents the general increase in prices of goods and services, and high inflation negatively affects the economy by raising the cost of living (Amelia & Hardini, 2017). PLS financing is also adversely impacted, as high inflation reduces the value of assets held by Islamic banks and increases interest rate pressures, thereby influencing bank lending (Effendi, 2018; Fathurrahman et al., 2021; Musa et al., 2022).

Macroeconomic theory posits that high inflation diminishes purchasing power and increases repayment risks, discouraging banks from providing PLS financing (Amelia & Hardini, 2017; Musa et al., 2022). However, some studies report that inflation has no significant effect on PLS financing (Fathurrahman et al., 2021). In line with theoretical expectations, inflation is hypothesized to negatively affect PLS financing. Accordingly, the following hypothesis is proposed:

Hypothesis 3: Inflation has a negative effect on rural Islamic banks' PLS financing.

The IPI measures economic growth based on the production output of various sectors within manufacturing, mining, and other industries (Purwasih & Wibowo, 2021). As the IPI rises, sectors often require additional financing to expand operations, leading to increased demand for PLS financing. Previous studies provide mixed results: Amelia and Hardini (2017), Fathurrahman et al. (2021), Effendi (2018), Musa et al. (2022), and Ibrahim et al. (2022) found no significant effect of inflation on financing composition. Effendi (2018) observed a positive and significant effect, while Musa et al. (2022)

reported a negative relationship. Similarly, Ibrahim et al. (2022) found no significant effect of IPI on PLS financing.

Since PLS financing is directly linked to real-sector activities and asset-backed projects, growth in the IPI, reflecting industrial expansion, is expected to drive higher demand for risk-sharing financing (Purwasih & Wibowo, 2021; Muhammad & Nugraheni, 2021). This argument aligns with growth theory, which associates industrial development with increased investment and productive financing needs. Accordingly, the following hypothesis is proposed:

Hypothesis 4: IPI positively affects PLS financing for rural Islamic Banks.

World Uncertainty Index

PLS contracts are often considered less risky in terms of risk distribution than conventional contracts, which rely on fixed interest rates and place the entire risk burden on borrowers (Massah & al-Sayed, 2013). Wicaksono et al. (2024) and Farihana & Rahman (2021) argue that PLS contracts can mitigate credit risk in Islamic banks. Similarly, Karim (2003) and Muhammad & Nugraheni (2021) contend that PLS financing is more resilient during financial crises because it is linked to tangible assets rather than speculative financial instruments. Conversely, Robiatun et al. (2024) find that PLS financing may increase uncertainty costs. Islamic banks face irregular deposit flows, fluctuating financing demand, unpredictable income streams, and principal-agent issues within PLS contracts, all of which can elevate uncertainty-related costs.

Given the close relationship between PLS financing and economic uncertainty, this study employs the World Uncertainty Index (WUI) as a key variable. Uncertainty theory suggests that higher uncertainty reduces investment and lending activities, particularly in risk-sharing contracts with unpredictable returns (Ahir et al., 2022; Bilgin et al., 2021). Therefore, WUI is expected to have a negative effect on PLS financing. However, because rural Islamic Banks primarily serve domestic micro and small enterprises, the magnitude of this effect may be less pronounced than in larger banks. Accordingly, the following hypothesis is proposed:

Hypothesis 5: The WUI negatively affects PLS financing in rural Islamic Banks.

RESEARCH METHODS

This study adopts a quantitative approach, utilizing secondary data in the form of a monthly time series spanning January 2011 to March 2024. Data on bank-specific factors were obtained from the cumulative IRB dataset provided by the Indonesian Financial Services Authority (OJK). macroeconomic variables, including the Industrial Production Index (IPI) and the inflation rate, were sourced from the Central Statistics Agency (BPS) and Bank Indonesia, while global uncertainty data were retrieved from the World Uncertainty Index (WUI) database. A time-series approach was employed instead of panel

data for two primary reasons. First, the analysis focuses on the aggregate financing patterns of IRBs in Indonesia rather than cross-sectional variations among individual banks. Second, key variables of interest, such as IPI, inflation, and WUI, are available only at the aggregate macroeconomic level, making a time-series framework more appropriate. The operational definitions and measurement details of all variables used in this study are summarized in Table 1.

Table 1. Operational Definitions of Variables

Types Variable	Variable Name	Variable Definition	Data Source
Dependent	PLSF	$\frac{\text{total PLS financing}}{\text{total financing}}$	Indonesia Financial Services Authority (OJK)
Independent	BOPO	$\frac{\text{operating expenses}}{\text{operating income}}$	Indonesia Financial Services Authority (OJK)
	ROA	$\frac{\text{earnings before tax}}{\text{average total assets}}$	Indonesia Financial Services Authority (OJK)
	INF	Inflation rate	Central Statistics Agency (BPS)
	IPI	Industrial Production Index	Bank Indonesia
	WUI	World Uncertainty Index	World Uncertainty Index

Source: Data Processed (2025)

PLS financing, defined as the ratio of PLS financing to total financing, serves as the dependent variable. This proxy has been widely adopted in previous studies (Ben Jedidia, 2020; Ibrahim et al., 2022; Nugraheni & Alimin, 2022; Robiatun et al., 2024) as a representative measure of PLS activity, the independent variables comprise bank-specific factors, macroeconomic conditions, and global uncertainty. Bank-specific factors are represented by BOPO and ROA. BOPO reflects operational efficiency and is measured as the ratio of total operating expenses to total operating income, while ROA indicates bank profitability by measuring a bank's ability to generate earnings from its assets. These two indicators were selected because together they capture both operational and profitability dimensions of bank performance.

Macroeconomic conditions are represented by the IPI and inflation. The IPI reflects the performance of the real sector, whereas the inflation rate captures the monetary environment. global uncertainty is measured using the World Uncertainty Index (WUI), based on its theoretical relevance and empirical advantages highlighted in prior studies. to stabilize variance and facilitate interpretation, all variables are expressed in natural logarithmic form due to their large magnitude and variability. This transformation ensures

more reliable estimates and allows coefficients to be interpreted in percentage terms. Based on these variables, The baseline regression model is formulated as follows:

$$\text{LnPLSF}_t = \alpha_0 + \beta_1 \text{LnBOPO}_t + \beta_2 \text{LnROA}_t + \beta_3 \text{LnINF}_t + \beta_4 \text{LnIPI}_t + \beta_5 \text{LnWUI}_t + e_t \quad (1)$$

Prior to estimation, several diagnostic tests were conducted. Descriptive statistics were first computed to summarize the mean, standard deviation, and range (maximum–minimum) of each variable, as well as the total number of observations. Next, stationarity was assessed using the Augmented Dickey-Fuller (ADF) test, as time-series data must be stationary to ensure valid regression results. The ADF test equation is as follows:

$$\Delta Y_t = \alpha_0 + \beta_t + \gamma Y_{t-1} + \theta(\Delta Y_{t-1}) + e_t \quad (2)$$

If the series is nonstationary at level $I(0)$, differencing is applied until it becomes stationary, either at $I(1)$ or $I(2)$. The ARDL model can be applied when the variables are integrated with mixed orders $I(0)$ and $I(1)$ but not $I(2)$. In addition, cointegration among the variables was verified using the Bounds Test with the F-statistic based on the model selected using the Akaike Information Criterion (AIC). Once these assumptions are satisfied, the Autoregressive Distributed Lag (ARDL) model is employed to estimate both the short-run dynamics and long-run equilibrium relationships among the variables. The ARDL specifications are as follows.

$$\begin{aligned} \Delta \text{LnPLSF}_t = & \alpha_0 + \sum_{i=1}^p \delta_{1i} \Delta \text{LnPLSF}_{t-i} + \sum_{j=1}^p \delta_{2j} \Delta \text{LnBOPO}_{t-j} \\ & + \sum_{k=1}^p \delta_{3k} \Delta \text{LnROA}_{t-k} + \sum_{l=1}^p \delta_{4l} \Delta \text{LnINF}_{t-l} + \sum_{m=1}^p \delta_{5m} \Delta \text{LnIPI}_{t-m} \\ & + \sum_{n=1}^p \delta_{6n} \Delta \text{LnWUI}_{t-n} + \varphi_1 \text{LnPLSF}_{t-i} + \varphi_2 \text{LnBOPO}_{t-i} \\ & + \varphi_3 \text{LnROA}_{t-i} + \varphi_4 \text{LnINF}_{t-i} + \varphi_5 \text{LnIPI}_{t-i} + \varphi_6 \text{LnWUI}_{t-i} + e_t \end{aligned} \quad (3)$$

Furthermore, the Error Correction Term (ECT) was employed to determine the speed of adjustment and to indicate how quickly the variables return to long-term equilibrium. The ECT is expected to have a significant and negative coefficient. Following the ECT estimation, a series of classical assumption tests were conducted. model stability was then assessed using the Cumulative Sum of Recursive Residuals (CUSUM) and the Cumulative Sum of Squares of Recursive Residuals (CUSUMSQ). The stability test is necessary to prevent instability in both long-term and short-term parameters. A significant CUSUM graph at the 5% confidence level indicates parameter stability. The ARDL model was chosen specifically because it enables simultaneous estimation of short-run and long-run relationships within a single framework. Short-run effects are captured by the differenced

lagged variables, while long-run relationships are derived from the cointegration test. The inclusion of the ECT further allows measurement of the adjustment speed toward equilibrium after short-term shocks (Pesaran et al., 2001)

RESULT

Based on the descriptive analysis in Table 2, LnPLSF has a mean of 2.63 with a standard deviation of 0.21, indicating that the distribution is relatively stable across the observation period. This suggests that IRBs tend to expand PLS financing gradually, without extreme volatility. The limited variability likely reflects the cautious approach of IRBs in extending PLS financing, given the higher monitoring costs and risk exposure associated with these contracts compared to non-PLS financing. Additionally, the relatively low dispersion may reflect structural constraints within IRBs, such as limited managerial capacity, insufficient risk assessment tools, and a preference for more secure financing instruments. In contrast, LnWUI exhibits a mean of 10.01 with a relatively high standard deviation of 0.37, indicating substantial fluctuations in global uncertainty during the study period. This high variability captures major global shocks, including the COVID-19 pandemic and geopolitical crises, which significantly heightened uncertainty. Overall, the contrast in variability between LnPLSF and LnWUI suggests that, while global uncertainty experienced considerable fluctuations, PLS financing remained relatively rigid, reflecting possible structural limitations and risk-averse behavior among IRBs.

Table 2. Descriptive Analysis

Variables	Obs	Mean	Maximum	Minimum	Std. Dev.
LnPLSF	159	2.633218	0.852053	2.382109	0.211091
LnBOPO	159	4.443173	4.524502	4.327438	0.049110
LnROA	159	0.852053	1.144223	0.488580	0.156169
LnINF	159	1.357427	3.401197	0.277632	0.508035
LnIPI	159	4.853637	5.091724	3.149740	0.191235
LnWUI	159	10.01049	10.95985	9.110550	0.368381

Source: Data processed (2025)

Moreover, the ADF unit root test is applied using the Schwarz Information Criterion (SIC) to determine the optimal lag length for each variable: LnPLSF, LnBOPO, LnROA, LnINF, LnIPI, and LnWUI . The results were as follows:

Table 3. Augmented Dickey-Fuller Test

Variables	Level	t-statistics	p-values
LnPLSF	I(1)	-8.187789	0.0000
LnBOPO	I(1)	-12.85448	0.0000
LnROA	I(1)	-11.11244	0,0000

LnINF	I(1)	-12.40747	0.0000
LnIPI	I(0)	-4.816216	0.0001
LnWUI	I(0)	-5.729864	0.0000

Source: Data processed (2025)

The results indicate that the variables exhibit a combination of stationarity at both I(0) and I(1) levels. Accordingly, the ARDL approach was considered appropriate for this analysis. Unlike other estimation techniques that require variables to be integrated at the same order, the ARDL framework accommodates variables integrated at different levels. Moreover, the ARDL model allows for the simultaneous estimation of short-run dynamics and long-run relationships within a single framework (Pesaran et al., 2001)

As noted earlier, the Akaike Information Criterion (AIC) was employed to determine the optimal ARDL model specification. the model with lowest AIC value was selected as the most suitable, resulting in ARDL (2, 3, 2, 3, 1, 0) as the best-performing model. After establishing the optimal model, a Bound Test for cointegration was conducted to assess the existence of a long-run equilibrium relationship among the variables. The results are summarized in Table 4.

Table 4. F-Bounds Test

Test Statistic	Value	Significant	Lower Critical Value	Upper Critical Value
F-Statistic	8.087644	10 %	2,08	3
		5 %	2,39	3,38
		2,5 %	2,7	3,73
		1 %	3,06	4,15

Source: Data processed (2025)

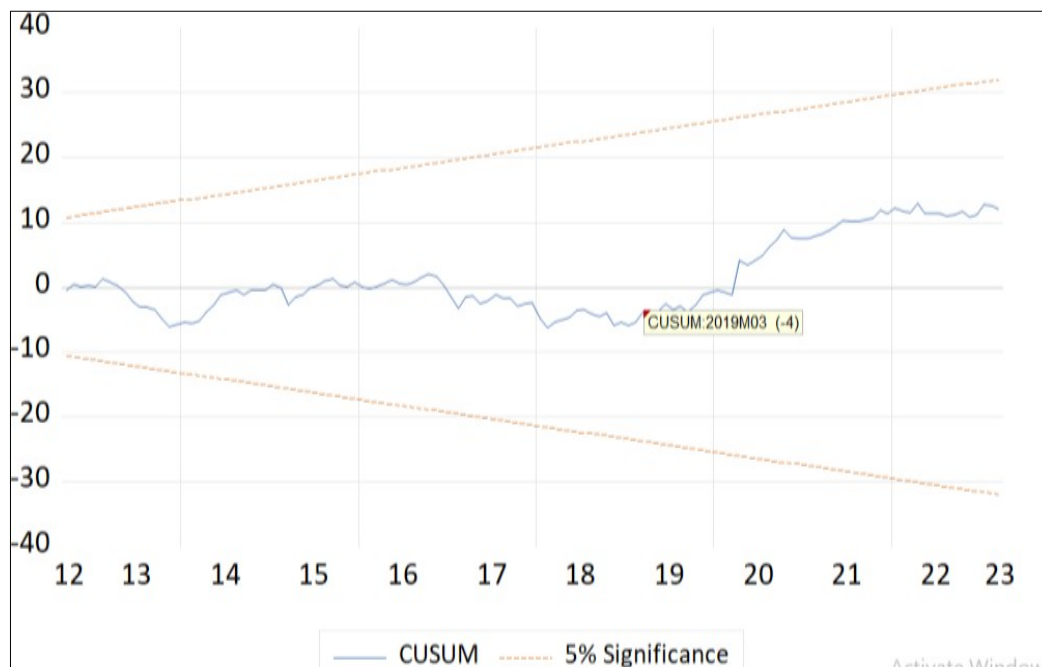
Table 4 shows that the calculated F-statistic (10.300275) exceeds the upper critical value of 3.38 at the 5% significance level. This result confirms the existence of a long-run relationship among the bank-specific variables (BOPO and ROA), macroeconomic factors (inflation rate and IPI), and global economic uncertainty. Consequently, the variables are co-integrated, and the model is suitable for proceeding to the estimation stage. Additionally, a series of classical assumption tests was conducted to ensure that the residuals were normally distributed, free from autocorrelation, and exhibited homogenous variance across observations. The results of these diagnostic tests are presented as follows:

Table 5. Classic Assumption Test

Test Statistic		Value	Probability	Result
Normality Test	Jarque-Bera	4,254627	0.119157	Normally distributed
Autocorrelation LM Test	F-statistic	1,448758	0,2388	No Autocorrelation
Heteroskedasticity Test	F-statistic	0,985682	0,4764	No Heteroskedasticity

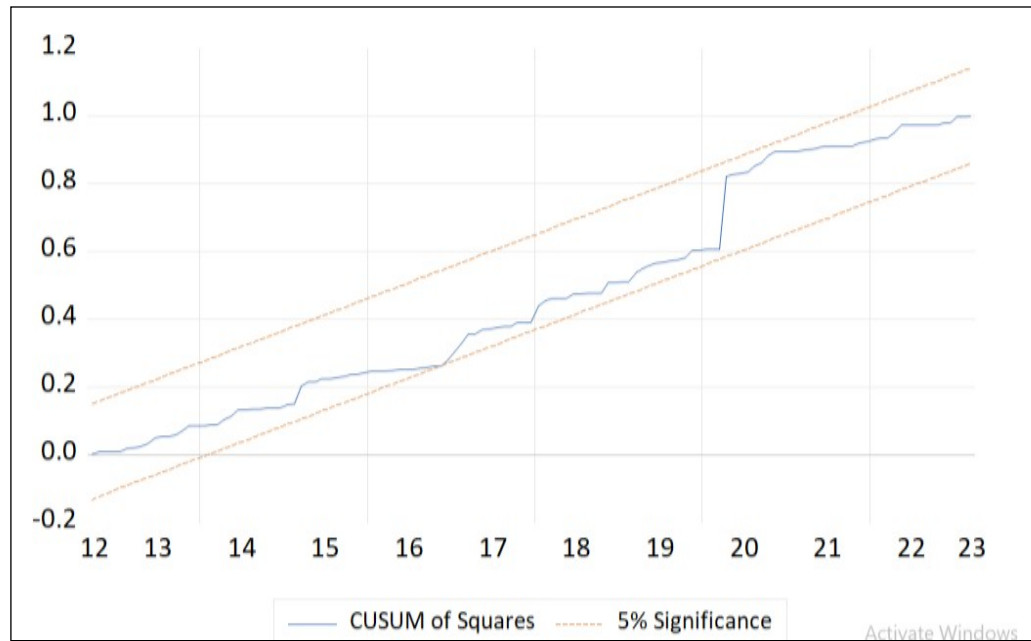
Source: Data processed (2025)

Finally, model stability was assessed using the Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMSQ) tests. The CUSUM line remaining within the 5% significance boundary indicates that the estimated parameters were stable over time. Similarly, the CUSUMSQ test confirmed model stability, ensuring the reliability of both short-and long-run estimates.



Source: Data processing (2025)

Figure 2. CUSUM Test



Source: Data processed (2025)

Figure 3. CUSUMQ Test

After completing all prerequisite procedures, the optimal ARDL model was estimated. The results indicate that, in the long run, the IPI exhibits a positive and significant relationship with PLS financing in IRBs. This finding suggests that higher industrial production, reflecting real -sector expansion, is associated with increased PLS financing. The detailed long-run estimation results are presented in Table 6.

Table 6. Long -term coefficients

Variables	Coefficient	Std. Error	t-statistics
LnBOPO	0.846060	0.632657	1.337313
LnROA	0.096334	0.121740	0.791306
LnINF	- 0.035403	0.042141	-0.840111
LnIPI	0.107564***	0.042114	2.554124
LnWUI	- 0.011270	0.011662	-0.966381
C	0.003920	0.003451	1.135659

Note: *** for 1% significance; ** for 5% significance.

Source: Data processed (2025)

The ARDL estimation also captures short-run dynamics through the Error Correction Term (ECT), which measures the speed of adjustment toward long-run equilibrium. The results indicate that the ECT coefficient, represented by $\text{CointEq}(-1)$, is -0.467888 and statistically significant, with a probability value of 0.000. This suggests that the model exhibits short-run cointegration, meaning that any short-term disequilibrium adjusts toward long-term equilibrium at a rate of approximately 46.79% per period. The detailed short-run estimation results are presented in the following table.

Table 7. Short -run coefficients

Variables	Coefficient	Std. Error	t-statistics
$\Delta \text{LnPLSF}(-1)$	0.356582***	0.078777	4.526481
$\Delta \text{LnPLSF}(-2)$	0.175530**	0.078482	2.236558
ΔLnBOPO	- 0.199542	0.104483	-1.909805
$\Delta \text{LnBOPO}(-1)$	0.171720	0.114400	1.501047
$\Delta \text{LnBOPO}(-2)$	0.211107	0.111460	1.894015
$\Delta \text{LnBOPO}(-3)$	0.212577**	0.096634	2.199819
ΔLnROA	-0.077554***	0.024415	-3.176477
$\Delta \text{LnROA}(-1)$	0.069150***	0.027761	2.490849
$\Delta \text{LnROA}(-2)$	-0.053478	0.029518	1.811698
ΔLnINF	0.0015590	0.006123	0.254514
$\Delta \text{LnINF}(-1)$	0.030435***	0.006990	4.353989
$\Delta \text{LnINF}(-2)$	-0.008497	0.007657	-1.109686
$\Delta \text{LnINF}(-3)$	-0.040062***	0.006787	-5.902519
ΔLnIPI	0.033869***	0.009303	3.640494
$\Delta \text{LnIPI}(-1)$	0.016459	0.009627	1.709765
ΔLnWUI	-0.005273	0.001647	-0.989567
CointEq (-1)*	-0,467888***	0.060755	-7.701259

Note: *** for 1% significance; ** for 5% significance.

Source: Data processed (2025).

The results indicate that, in the short run, several exogenous variables exert a significant influence on endogenous variables. These include $\Delta \text{LnPLSF}(-1)$, $\Delta \text{LnPLSF}(-2)$, $\Delta \text{LnBOPO}(-3)$, ΔLnROA , $\Delta \text{LnROA}(-1)$, $\Delta \text{LnINF}(-1)$, $\Delta \text{LnINF}(-3)$, and ΔLnIPI , confirming the existence of short-run relationships among the constructs. However, LnWUI does not exhibit a statistically significant effect, suggesting that global uncertainty does not immediately affect profit-loss-sharing financing within the observed period.

DISCUSSION

The main findings of this study provide empirical evidence that real-sector indicators, particularly the Industrial Production Index (IPI), significantly influence PLS financing in IRBs in Indonesia. This result reinforces the theoretical proposition that *mudharabah* and *musharakah* contracts are inherently linked to productive economic activities. By contrast, other macroeconomic and bank-specific variables—including ROA, BOPO, inflation, and the World Uncertainty Index (WUI)—do not exhibit significant long-run effects. This suggests that PLS financing remains relatively resilient to financial volatility and internal efficiency fluctuations over time.

This finding aligns with Muhammad & Nugraheni (2021), who argue that PLS financing is more closely associated with real economic activities and tangible assets than with the financial assets typically emphasized by conventional banks. An increase in IPI reflects industrial activity and overall production levels, signaling economic expansion. Such growth stimulates demand for PLS financing, as Islamic banks act as investment partners in productive ventures. Since PLS financing depends on the success of the financed projects or enterprises, improved industrial performance and rising IPI reduce the likelihood of business failure, enhancing the attractiveness of PLS arrangements and their potential to yield higher returns for Islamic banks.

Conversely, the insignificance of ROA suggests that profitability does not directly drive the allocation of funds toward PLS financing. This can be attributed to the long-term, partnership-oriented nature of *mudarabah* and *musharakah* contracts, which prioritize shared risks and mutual benefits over short-term gains. Unlike conventional credit-based transactions, these contracts require banks to act as investment partners rather than lenders seeking immediate profits. Additionally, IRBs often allocate profits toward strengthening liquidity buffers and maintaining capital adequacy, rather than expanding PLS portfolios. This conservative approach reflects their risk-averse behavior, prioritizing short-term stability over potentially higher but riskier returns from PLS contracts. These findings corroborate Effendi (2018), who reported a positive but statistically insignificant relationship between profitability and equity-based financing in Indonesian Islamic banks.

Similarly, inflation does not significantly affect PLS financing in the long run, likely because both banks and customers adjust expectations of rising prices. Financial institutions anticipate inflation in their projections and contract terms, and Indonesia's relatively moderate inflation during the study period allowed for such adjustments. Consequently, the impact of inflation on financing decisions was minimized, particularly because Islamic banks emphasize real-sector activities that generate tangible value rather than relying on interest-sensitive instruments. These results are consistent with Amelia & Hardini (2017), Fathurrahman et al. (2021) who report similar findings for *mudarabah* financing. This indicates that customers' financing decisions are influenced less by macroeconomic factors and more by the PLS rates offered by banks. The overall low and stable inflation rate in Indonesia further supports this explanation.

BOPO also does not significantly affect PLS financing, as it primarily reflects operational efficiency rather than direct financing allocation. Variations in BOPO are relatively small, making differences in operational efficiency insufficient to explain long-term financing dynamics. This finding supports the view that efficiency ratios such as BOPO influence bank decisions in the short term, but their effect diminishes as banks adjust to macroeconomic and regulatory environments over time. Since PLS financing involves

shared risks and returns, its success depends more on the performance of financed businesses than on the bank's internal cost management. This aligns with Effendi (2018), who found an insignificant relationship between BOPO and equity financing, and with Robiatun et al. (2024), who observed that promoting PLS financing does not necessarily reduce net margins.

The WUI similarly does not significantly influence PLS financing. because PLS contracts are tied to domestic real-sector activities, such as agriculture, manufacturing, and SMEs, rather than international financial markets, global uncertainty has limited direct impact. IRBs focus on tangible asset-based investments in line with Sharia principles, avoiding speculative ventures. While heightened global uncertainty may temporarily prompt a cautious approach, IRBs typically resume normal operations as stability returns. Their limited exposure to volatile financial instruments also reduces sensitivity to global market fluctuations.

In the short run, WUI similarly shows no significant impact. This could be because such uncertainty does not directly affect the financing decisions of Islamic financial institutions, which focus more on localized and microeconomic aspects. Additionally, PLS financing is project-based and involves thorough risk assessments before contracts are finalized. These pre-emptive evaluations help mitigate the effects of uncertainty, ensuring that external shocks have limited short-term impact. Moreover, since Islamic rural banks in Indonesia concentrate on the local economy and SMEs, they demonstrate greater resilience to disruptions arising from global uncertainty.

In the short run, several variables significantly influence PLS financing, including lagged PLS financing ($\text{LnPLSF}(-1)$, $\text{LnPLSF}(-2)$), operational costs ($\text{LnBOPO}(-3)$), profitability (LnROA , $\text{LnROA}(-1)$), inflation ($\text{LnINF}(-1)$, $\text{LnINF}(-3)$), and IPI (LnIPI). . This confirms the presence of short-run relationships among the constructs. Specifically, past PLS financing decisions ($\Delta\text{LnPLSF}(-1)$ and $\Delta\text{LnPLSF}(-2)$) influence current PLS financing, reflecting policy continuity where previous financing patterns inform subsequent decisions. The significant effect of operating costs ($\Delta\text{LnBOPO}(-3)$) suggests that higher short-term costs can constrain financing allocations.

Interestingly, ΔLnROA exhibits a negative and significant effect on PLS financing, whereas $\Delta\text{LnROA}(-1)$ shows a significant positive influence. This indicates the presence of temporal dynamics in PLS financing responses to changes in bank profitability. Specifically, a decline in current profitability may lead banks to reduce PLS financing due to higher risk exposure and a preference for safer instruments. In contrast, higher profitability in the previous period encourages an expansion of PLS financing, suggesting that banks tend to be more aggressive in channeling financing when they possessed stronger financial capacity in the preceding period. This finding aligns with Meslier et al. (2020) and Silvia et

al. (2024) who reported that Islamic banks with high profitability probably will use more equity-based financing to diversify their financing portfolio and maintain a solid balance sheet. Thus, lagged profitability plays an important role in shaping PLS financing allocation decisions.

Inflation also shows short-term significance ($\Delta \ln INF(-3)$), affecting purchasing power and economic expectations. rising inflation increases credit risk, prompting banks to adjust PLS policies, such as profit-sharing ratios or financing requirements. Prior studies have reported mixed findings. Fathurrahman et al. (2021) observed a positive relationship, while Musa et al. (2022) identified a negative one, depending on the inflationary phase. Meanwhile, the Industrial Production Index ($\Delta \ln IPI$) captures real economic activity, its increase signals expansion, which drives higher demand for financing, including PLS. Thus, industrial growth positively contributes to PLS financing development among IRBs in Indonesia.

The divergence from conventional financial theories highlights the unique characteristics of IRBs and the aggregated nature of the data. While traditional theory emphasizes profitability, efficiency, inflation, and global uncertainty, these factors exert limited long-term influence. Instead, IPI, a proxy for real-sector performance, emerges as the dominant factor, reflecting IRBs' close linkage with MSMEs engaged in productive sectors. Indonesia's stable inflation further reduces long-term effects, although short-term responsiveness to profitability, operational efficiency, and inflation remains evident. Aggregated system-level data may obscure interbank variations, suggesting that PLS financing is primarily driven by real-sector performance rather than internal or global variables.

CONCLUSION

This study highlights both the short-term dynamics and long-term effects of operational efficiency, profitability, inflation, the Industrial Production Index (IPI), and the World Uncertainty Index (WUI) on profit-loss sharing (PLS) financing using the ARDL Approach. The results indicate that only the IPI significantly influences PLS financing, suggesting that IRBs' profit-sharing contracts are inherently linked to real-sector activities. In contrast, variables such as ROA, BOPO, and inflation may affect short-term financing decisions but do not shape long-run structural dynamics, reflecting the long-term investment orientation of IRBs rather than short-term profitability or efficiency motives. the WUI showed no significant influence in either the short or long term, indicating that global uncertainty does not substantially affect PLS financing in Indonesia's Islamic rural banking sector.

These findings suggest that IRBs serving primarily micro- and small-scale enterprises are relatively insulated from global financial volatility and are more dependent on domestic industrial conditions. From a policy perspective, the results highlight the

importance of strengthening partnerships between IRBs, the industrial sector, and local entrepreneurs to foster the expansion of PLS financing. Improving financial performance and operational efficiency can also enhance banks' capacity to allocate funds to PLS-based projects, thereby reinforcing their role in inclusive and sustainable economic growth. Nonetheless, this study has several limitations. The reliance on aggregate data restricts the ability to capture heterogeneity among individual IRBs, where factors such as size, governance quality, and regional economic conditions may play a role. Additionally, the focus on a limited set of variables excludes other potentially relevant determinants, such as regulatory frameworks, institutional capacity, and risk management practices. Future research should incorporate bank-level or regional data, conduct comparative analyses with larger Islamic banks, and integrate qualitative dimensions, including managerial behavior and customer financing preferences.

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