



Deposit Stability and Financial Sustainability in Islamic Banking: Evidence from Indonesia Using an ARDL Framework

Rini Kurnia Sari^{1,2*}, B. Budiono¹, Achmad Kemal Hidayat¹, Rudi Kurniawan¹

¹ Department of Economics, Universitas Padjajaran, West Java 45363, Indonesia

² Department of Management, BINUS Online Learning, Bina Nusantara University, Jakarta 11480, Indonesia

Corresponding Author Email: rini.sari@binus.edu

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ABSTRACT

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The long-term sustainability of Islamic banking systems depends critically on the stability and resilience of deposit mobilization. In Indonesia, despite a predominantly Muslim population, Sharia banks continue to record a relatively small market share compared with conventional banks. Understanding the structural drivers of deposit accumulation is therefore essential for assessing the sustainability of Islamic financial intermediation in emerging economies. This study investigates the short- and long-term determinants of Sharia bank deposits in Indonesia using monthly data from 2010 to 2022 and the Autoregressive Distributed Lag (ARDL) approach. The analysis evaluates both bank-specific fundamentals—deposit returns, return on assets (ROA), operating expense to operating income (OEOI), financing-to-deposit ratio (FDR), non-performing financing (NPF), and branch network expansion—and macro-financial variables including inflation, policy rate, and the Jakarta Islamic Index (JII). The results confirm the existence of a long-run equilibrium relationship between institutional performance, macroeconomic stability, and deposit dynamics. In the long term, deposit returns and NPF exert a negative effect on deposit volume, suggesting that depositor confidence is closely associated with risk perceptions and institutional soundness. Inflation also weakens deposit sustainability over time. In the short term, JII and OEOI positively influence deposit growth, whereas higher FDR reduces deposit inflows, reflecting liquidity sensitivity. By situating deposit behavior within a broader financial sustainability framework, this study provides evidence that the stability of Islamic banking deposits is shaped not only by profitability considerations but also by risk management, macroeconomic conditions, and capital market interactions. The findings contribute to policy discussions on strengthening the resilience and sustainable development role of Islamic banking systems in emerging economies.

1. INTRODUCTION

Deposits constitute the primary funding base of both conventional and Sharia banking institutions. In the context of Islamic banking, stable deposit mobilization is not only a matter of liquidity management but also a prerequisite for maintaining financial sustainability and long-term institutional resilience. In Indonesia, the role of Sharia banking has expanded in response to growing awareness of Islamic principles in financial activities [1]. Nevertheless, despite this expansion, Sharia banks continue to attract fewer deposits than conventional banks. Public perceptions regarding profitability, risk exposure, and institutional stability remain influential in shaping depositor behavior. Customers frequently perceive Sharia returns as comparatively less competitive, and concerns over financial soundness affect confidence in deposit placement decisions [2, 3]. In addition, compared to Malaysia, the development trajectory of Sharia banking in Indonesia has been slower, partly due to differences in regulatory frameworks, policy support, and financial infrastructure [4].

Indonesia, where more than 85% of the population is Muslim, possesses substantial structural potential to become a leading hub of Islamic finance [5]. However, potential does not automatically translate into financial system sustainability. Although the government has introduced various supportive measures, participation in Sharia banking remains limited. This situation reflects persistent challenges, including low levels of Islamic financial literacy and operational inefficiencies within banking institutions [6]. External pressures such as macroeconomic instability and regulatory constraints also affect sectoral growth [7]. Internal structural factors—including limited product diversification and operational inefficiency—further constrain market share expansion [8]. From a sustainability perspective, these constraints weaken the capacity of Sharia banks to build stable funding structures capable of supporting long-term development objectives.

Sharia banking institutions operate under regulatory supervision designed to support an Islamic-oriented financial system that aligns with national development strategies [9].

The expansion of Islamic banking is therefore not solely a commercial matter, but part of a broader institutional effort to establish a financial architecture consistent with ethical and religious principles. Indonesia's demographic structure suggests that Islamic finance could play a systemic role in mobilizing savings and supporting productive investment. Yet, despite this demographic advantage, Sharia banking remains behind Malaysia and several other Muslim-majority countries in terms of asset scale and institutional depth [4, 6]. Differences in policy consistency, capital support, and legal frameworks have influenced these divergent outcomes.

Data from the Indonesian Financial Services Authority (OJK) illustrate the scale gap between conventional and Sharia banking. In 2021, total Sharia banking assets reached IDR 694 trillion, compared with IDR 10,298 trillion in conventional banking assets. As of August 2021, Sharia banking customer accounts numbered 49.12 million [9]. These figures highlight a persistent imbalance in financial intermediation. Although Indonesia hosts the largest Muslim population in ASEAN and globally, Sharia banking has not yet achieved proportional financial penetration. From a sustainable financial system standpoint, this imbalance raises concerns regarding the ability of Islamic banking institutions to build stable deposit bases that can support inclusive and resilient growth.

Several studies have identified structural reasons for the relatively low adoption of Sharia banking services. Public trust remains a critical factor [10]. Conventional banks continue to dominate commercial transactions, particularly in segments where regulatory limitations restrict Sharia banks' flexibility. Moreover, a limited understanding of Islamic financial contracts reduces participation. Bustamin et al. [7] noted that operational inefficiency, limited financing variation, and reliance on costly deposit structures hinder sustainable growth. Macroeconomic instability further complicates funding stability [7]. Romli [6] identified additional barriers, including insufficient literacy, limited involvement of religious leaders in promoting Islamic economics, and suboptimal government engagement. Institutional weaknesses in human capital and academic support also constrain development [8]. Despite regulatory oversight, effective strategies to expand public awareness and strengthen depositor confidence remain underdeveloped.

Under Sharia banking regulations, institutions bear responsibility for safeguarding depositor funds and ensuring prudent asset allocation [11]. Transparency, compliance with halal principles, and procedural clarity are essential for maintaining depositor trust. Deposits serve as the main funding channel through which banks manage liquidity risk and support long-term investment allocation [12]. Effective liquidity management enhances systemic stability, particularly during periods of economic uncertainty. Given the sensitivity of Sharia banks to fluctuations in deposit inflows and withdrawals, understanding the determinants of deposit dynamics is crucial for sustaining institutional resilience [5].

Both internal and external determinants influence deposit behavior. Bank-specific fundamentals—including profitability, risk exposure, liquidity structure, and operational efficiency—shape depositor confidence and influence fund allocation decisions [13-19]. Depositors respond to perceived risk-taking and financial performance, as reflected in capital adequacy and profitability indicators such as ROA [20]. In addition, macroeconomic volatility introduces systemic risks that influence withdrawal behavior and savings decisions [21].

Although prior research has emphasized sociocultural and

institutional barriers—including literacy levels, government policy, and religious engagement—less attention has been given to the integrated micro-macroeconomic determinants of Sharia banking deposit stability. A comprehensive understanding of these determinants is necessary to evaluate the sustainability of Islamic banking within a broader financial system framework. This study therefore addresses the empirical gap by examining how bank-specific fundamentals and macroeconomic conditions jointly influence the long-term and short-term dynamics of Sharia bank deposits in Indonesia.

2. LITERATURE REVIEW

Sharia banking in Indonesia operates through several deposit instruments structured under Islamic contractual principles. Five main categories are commonly offered: Wadiah contract demand deposits, Wadiah contract savings, Mudharabah contract demand deposits, Mudharabah contract savings, and Mudharabah contract deposits [7]. Wadiah contracts allow depositors to withdraw funds under agreed conditions, with the bank obligated to return the entrusted amount upon request [22, 23]. In contrast, Mudharabah deposits are based on profit-sharing arrangements in which funds are managed by the bank and withdrawals are restricted according to predefined maturity structures [5, 24]. These contractual differences shape the risk-sharing characteristics and funding stability of Islamic banks.

Mudharabah deposits may be placed for fixed maturities such as one, three, or twelve months, with returns distributed according to agreed profit-sharing ratios [2]. From a financial sustainability perspective, deposit stability in Islamic banks depends not only on contractual design but also on institutional fundamentals. Depositors generally prefer institutions with stronger performance indicators and lower perceived risk [15, 16]. Trinugroho et al. [19] emphasized that both macroeconomic and microeconomic conditions, including deposit rates, profitability, and liquidity ratios, influence depositor monitoring behavior. Larger investors tend to actively supervise institutional risk exposure, whereas smaller depositors may respond more gradually to default signals.

Returns on Mudharabah deposits are derived from operational income generated by Sharia banking activities. These returns, whether in the form of profit sharing, bonuses, or service-based benefits, are determined by management policies and underlying asset performance [25]. Empirical evidence suggests that deposit returns are positively associated with deposit volumes in Islamic banking systems [11, 26]. Norwati [27] similarly reported a positive association between deposit returns and deposit levels in conventional banking. Classical savings theory supports this relationship, arguing that higher returns increase the incentive to save. The interest or profit-sharing rate signals the reward for postponing consumption, thereby influencing deposit growth.

Profitability is commonly measured through ROA, which reflects the institution's capacity to generate earnings from its asset base [28]. ROA serves as an indicator of institutional health and operational efficiency. When profitability declines, depositors may shift funds toward institutions perceived as more stable [18, 29]. Higher ROA values indicate effective asset utilization and stronger performance [30, 31]. Other studies show that strong profitability enhances institutional attractiveness and signals growth potential [32, 33]. Within Sharia banking, a positive relationship between ROA and

deposit volume has been documented [29], suggesting that profitability contributes to depositor confidence and funding stability.

Operational efficiency also influences deposit behavior. The OEOI ratio measures the extent to which institutions manage costs relative to revenue generation [34]. Lower OEOI values indicate efficient cost management and stronger operational discipline. Empirical findings suggest that improved efficiency strengthens depositor trust and supports deposit growth. Conversely, higher operational burdens may signal inefficiency, thereby weakening confidence in institutional sustainability.

Liquidity management constitutes another determinant of deposit stability. The FDR captures the relationship between funds disbursed as financing and funds mobilized through deposits [35]. Elevated FDR levels may indicate liquidity pressure, particularly when financing expansion outpaces deposit accumulation. Suliyono and Risfandy [36] found that higher FDR is negatively associated with deposit volumes in Islamic banks. Excessive reliance on external funding sources can increase liquidity risk [37], potentially reducing depositor confidence and undermining funding sustainability.

Credit risk further affects deposit dynamics. NPF measures the proportion of problematic financing relative to total financing [38]. High NPF ratios signal weakened asset quality and elevated credit risk. Abusharbeh [20] reported a negative relationship between NPF and deposit levels, indicating that deteriorating credit portfolios may erode depositor trust. Maintaining low NPF ratios is therefore essential for preserving liquidity resilience and institutional credibility within Islamic banking systems.

Institutional accessibility also contributes to deposit growth. The expansion of branch networks increases customer access and strengthens public visibility [39]. Empirical evidence from Nigeria shows that a one percentage point increase in branch expansion may generate a 4.53 percent increase in deposits [40]. Branch presence has also been linked to market share gains in savings and loan markets [41]. Greater accessibility may therefore reinforce deposit mobilization capacity and support long-term funding structures.

Macroeconomic variables influence savings behavior through broader financial conditions. Classical theory posits that interest rates affect savings decisions [42, 43]. In Indonesia, monetary policy is implemented through the policy rate framework established by Bank Indonesia [44]. The policy rate functions as a benchmark influencing deposit returns and financial expectations. Muhammadinah [45] found that higher policy rates are associated with increased deposit levels. Monetary stability may enhance depositor confidence by reducing uncertainty and strengthening perceptions of macro-financial stability.

Inflation also plays a role in shaping savings decisions. Measured through the consumer price index (CPI) compiled by BPS [46], inflation reflects changes in purchasing power and household consumption patterns [47]. In theoretical terms, moderate inflation may stimulate precautionary savings, whereas excessive inflation can erode real returns [48]. Empirical studies report a positive relationship between inflation and deposit levels in certain contexts [26, 29], suggesting that inflation-induced uncertainty may increase savings as a protective response.

Capital market dynamics may also influence deposit allocation. The JII represents the 30 most liquid Sharia-compliant stocks listed on the Indonesia Stock Exchange [49].

Movements in JII are often interpreted as signals of economic prospects and investor sentiment [50]. Optimism regarding capital gains may shift funds from bank deposits toward equity markets, implying a potential negative relationship [51]. However, other studies document a positive association between Islamic stock indices and deposit growth [11, 26]. According to the life-cycle income hypothesis, increases in asset values may strengthen overall wealth and stimulate savings. Although Sharia-compliant investors may exhibit distinct portfolio preferences, fluctuations in Islamic equity markets remain relevant to deposit allocation decisions.

Overall, the existing literature indicates that deposit dynamics in Islamic banking are shaped by a combination of contractual structure, institutional fundamentals, liquidity management, credit risk exposure, accessibility, and macroeconomic stability. However, much of the prior research has examined these determinants in isolation. A more integrated framework that considers both bank-specific and macroeconomic dimensions is necessary to assess the sustainability and resilience of Sharia banking deposits over time.

3. HYPOTHESIS DEVELOPMENT

Deposit stability in Islamic banking is shaped by a combination of institutional performance, liquidity structure, risk exposure, and macroeconomic conditions. In the Indonesian context, Mudharabah deposits represent a primary instrument of profit-sharing savings and therefore serve as the empirical focus of this study. Understanding the determinants of Mudharabah deposit accumulation is essential for evaluating the funding sustainability of Sharia banking institutions.

Drawing on the preceding literature, this study categorizes determinants into two broad groups: bank-specific fundamentals and macroeconomic conditions. Bank-specific factors include deposit returns, ROA, OEOI, FDR, NPF, and branch network expansion. Macroeconomic determinants consist of the Bank Indonesia policy rate, inflation, and capital market performance proxied by the JII.

Deposit returns represent the direct financial incentive offered to depositors. Higher expected returns increase the attractiveness of Mudharabah deposits and may strengthen funding inflows by compensating depositors for liquidity constraints and profit-sharing uncertainty. From a savings behavior perspective, improved returns are expected to stimulate deposit growth.

H1: Deposit returns have a positive influence on the amount of deposits.

Profitability, as measured by ROA, reflects institutional efficiency and financial strength. Higher profitability signals effective asset management and enhances depositor confidence in the bank's sustainability. Institutions demonstrating stronger performance are more likely to attract stable funding.

H2: ROA has a positive influence on the amount of deposits.

Operational efficiency, proxied by OEOI, captures the ability of banks to manage costs relative to revenue. Higher operational expenses relative to income may signal inefficiency and weaken depositor trust. Conversely, improved efficiency enhances institutional credibility and funding stability.

H3: OEOI has a negative influence on the amount of

deposits.

Liquidity management is represented by the FDR. A higher FDR may indicate aggressive financing relative to available deposits, potentially increasing liquidity risk. Elevated liquidity pressure can reduce depositor confidence and discourage deposit accumulation.

H4: FDR has a negative influence on the amount of deposits.

Credit risk exposure, measured by NPF, reflects asset quality. Rising NPF ratios signal deterioration in financing performance and may increase perceived institutional risk. Higher credit risk is therefore expected to weaken deposit growth.

H5: NPF has a negative influence on the amount of deposits.

Branch network expansion enhances accessibility and customer outreach. Increased physical presence may strengthen depositor trust and improve deposit mobilization capacity. Greater accessibility reduces transaction costs and increases financial inclusion.

H6: The number of offices has a positive influence on the amount of deposits.

Monetary conditions influence savings behavior through policy rate adjustments. An increase in the policy rate may improve expected returns on savings and strengthen perceptions of macro-financial stability, thereby encouraging deposit accumulation.

H7: Policy rate has a positive influence on the amount of deposits.

Inflation affects the real value of savings. Rising inflation may erode purchasing power and reduce the attractiveness of holding deposits if nominal returns do not adjust proportionally. Persistent inflationary pressure may therefore weaken deposit growth.

H8: Inflation has a negative influence on the amount of deposits.

Capital market dynamics, proxied by the JII, may alter portfolio allocation decisions. Growth in Islamic equity markets may reflect improving economic conditions and rising wealth, potentially increasing overall savings capacity. At the same time, stronger equity performance may compete with deposit instruments. Given prior empirical findings indicating a positive association in Islamic contexts, this study tests the following hypothesis:

H9: JII has a positive influence on the amount of deposits.

4. RESEARCH METHODS

This study adopts a quantitative empirical approach to examine the determinants of Sharia banking deposits in Indonesia. The analysis integrates descriptive statistical examination with inferential econometric testing to evaluate both the characteristics of the data and the structural relationships among variables. Descriptive analysis provides an overview of the distributional properties of the variables and allows preliminary assessment of trends and variability [52]. Inferential analysis is subsequently employed to test the proposed hypotheses and to determine the statistical significance and direction of the relationships between deposit accumulation and its determinants.

The study utilizes secondary monthly time-series data covering the period from January 2010 to December 2022. Data on Sharia banking variables—including deposit returns, ROA, OEOI, FDR, NPF, and number of offices—are obtained from official Sharia banking statistics published by the OJK.

Macroeconomic variables, namely the policy rate and inflation, are collected from Bank Indonesia (BI) and the Central Statistics Agency (BPS). Data on the JII are sourced from Yahoo Finance. The selected period captures variations across different economic cycles, including periods of financial adjustment and the COVID-19 shock, thereby allowing evaluation of both short-run fluctuations and long-run structural relationships.

To assess the determinants of deposit stability, the empirical model evaluates the impact of bank-specific fundamentals (deposit returns, ROA, OEOI, FDR, NPF, and branch expansion) together with macroeconomic factors (policy rate, inflation, and JII) on the logarithm of total Mudharabah deposits. The inclusion of both micro-level institutional variables and macroeconomic indicators enables an integrated assessment of funding sustainability within the Islamic banking sector.

The econometric framework is based on the ARDL model. The ARDL approach is suitable for time-series analysis where variables may exhibit different orders of integration, provided none is integrated of order two or higher. This framework allows simultaneous estimation of short-run dynamics and long-run equilibrium relationships between the dependent and independent variables. In the context of deposit sustainability, distinguishing between temporary fluctuations and long-term equilibrium adjustments is particularly relevant.

Using the ARDL specification, the relationship between the independent variables—deposit returns, ROA, OEOI, FDR, NPF, number of offices, inflation, policy rate, and JII—and the dependent variable (amount of deposits) is examined in both short-term and long-term settings. The model incorporates lag structures for both the dependent and explanatory variables to capture adjustment processes and delayed behavioral responses. The error correction representation derived from the ARDL model provides information on the speed at which deviations from long-run equilibrium are corrected over time.

To examine both short-run dynamics and long-run equilibrium relationships, this study employs the ARDL modeling framework developed by Pesaran et al. [53]. The ARDL approach is particularly suitable for time-series data in which explanatory variables may be integrated of order I(0) or I(1), provided that none of the variables is integrated of order I(2). This flexibility makes the ARDL specification appropriate for analyzing macro-financial relationships in emerging economies.

Prior to estimation, unit root tests were conducted to verify the order of integration of each variable. After confirming that the variables are either I(0) or I(1), the optimal lag structure was selected based on the Akaike Information Criterion (AIC), ensuring model stability and parsimony.

The general ARDL (p, q_1, q_2, \dots, q_k) model is specified as:

$$\begin{aligned} \ln DEP_t = & \alpha_0 + \sum_{i=1}^p \alpha_i \ln DEP_{t-i} + \sum_{j=0}^{q_1} \beta_{1j} IDEP_{t-j} + \sum_{j=0}^{q_2} \beta_{2j} ROA_{t-j} \\ & + \sum_{j=0}^{q_3} \beta_{3j} OEOI_{t-j} + \sum_{j=0}^{q_4} \beta_{4j} FDR_{t-j} \\ & + \sum_{j=0}^{q_5} \beta_{5j} NPF_{t-j} + \sum_{j=0}^{q_6} \beta_{6j} JK_{t-j} + \sum_{j=0}^{q_7} \beta_{7j} INF_{t-j} \\ & + \sum_{j=0}^{q_8} \beta_{8j} PR_{t-j} + \sum_{j=0}^{q_6} \beta_{9j} JII_{t-j} + \varepsilon_t \end{aligned}$$

where DEP_t denotes the logarithm of total Mudharabah

deposits, and the remaining variables represent bank-specific

and macroeconomic determinants as defined in Table 1.

Table 1. Operational definition of variables

No.	Variable	Explanation	Measurement Scale
1	Number of deposits (DEP)	The number of deposits in Sharia banking (Natural logarithm) is defined as those that are not limited in use which are entrusted by customers to Sharia banking, based on a Mudharabah agreement on deposits for 12 months.	
2	Deposit returns (IDEP)	Deposit returns are defined as a cooperation agreement between depositors as capital owners and Sharia banking. In this research, we use deposit returns based on a one-year (12-month) Mudharabah contract.	
3	ROA	ROA measures Sharia banking's ability to generate profits from all assets owned. ROA is calculated by dividing net profit by total assets.	
4	Operating expenses operating income (OEOI)	The operating expense ratio, which is the ratio of operating expenses to operating income.	
5	FDR	Financial ratios that assess how a bank uses the amount of money it receives from clients in loans or financing relative to the amount of money kept in deposits.	Ratio
6	NPF	An arrangement for loans or financing where returns are not made, or payments are not made according to the prearranged schedule.	
7	Number of offices (JK)	Number of offices in Sharia banks (branch offices, sub-branch offices, cash offices).	
8	Policy rate (PR)	Bank Indonesia's guidelines for calculating interest rates or returns on Sharia banking.	
9	Inflation (INF)	Inflation is a general and continuous increase in the prices of goods and services over a certain period. Inflation calculations are carried out by BPS, referring to data from the CPI.	
10	JII	The JII is an Islamic stock index.	

To test the existence of a long-run relationship among the variables, the bounds testing procedure was applied. If the computed F-statistic exceeds the upper critical bound, cointegration is confirmed.

Upon establishing cointegration, the error correction representation (ECM) is estimated:

$$\Delta \ln DEP_t = \gamma_0 + \sum_{i=1}^{p-1} \gamma_i \Delta \ln DEP_{t-i} + \sum_{m=1}^k \sum_{j=0}^{q_m-1} \delta_{mj} \Delta X_{m,t-j} + \phi ECT_{t-1} + \mu_t$$

where ECT_{t-1} is the lagged error-correction term obtained from the estimated long-run relationship, and ϕ measures the speed at which short-run deviations adjust toward the long-run equilibrium.

Table 1 shows the results of the elaboration of the variables studied in this research. These variables consist of the independent variable (X) and the dependent variable (Y). The independent variables (X) in this research are deposit returns, ROA, OEOI, FDR, NPF, number of offices, policy rate, inflation and JII. The dependent variable (Y) is the number of deposits.

Document and literature study are the methods used in this research to collect data. Time series data from January 2010 to December 2022 was obtained from OJK Sharia banking statistics via the official OJK portal. Relevant literature from reliable sources, including books, journals, and other publications, was also collected. The data was then quantitatively analyzed to identify significant trends and relationships in the context of Sharia banking in Indonesia.

The data used was last updated in December 2022; the data remains relevant for this research. The sharia banking industry in Indonesia is developing within a stable regulatory

framework, so that the trends that occur in 2022 still reflect the conditions that prevail today. In addition, OJK regularly updates data until the end of the year, so that analysis based on this data can still provide accurate and relevant insights into the development of the sharia banking sector in Indonesia.

5. RESULT AND DISCUSSION

5.1 Descriptive statistics

Descriptive statistical analysis in Table 2 summarizes the distributional characteristics of each variable, including measures of central tendency and dispersion. In particular, the analysis reports the average value (mean), the middle value (median), the highest value (maximum), and the lowest value (minimum), which together provide a direct description of data concentration and range. In addition, the degree of variability is described using the standard deviation (std. dev). Standard deviation is commonly used to represent the spread of observations around the mean and to indicate the diversity of values within a sample, thereby offering a practical indication of how dispersed each variable is across time.

This time-series dataset consists of 156 monthly observations and covers LN, DEP, IDEP, ROA, OEOI, FDR, NPF, JK, PR, INF, and JII within one period. The average LN value is 8.937. Among the institutional ratios, FDR records the highest mean value (93.239), while ROA shows the lowest mean level (1.607). In terms of dispersion, the standard deviation is largest for JK (347.005), indicating substantial variation in branch network size over time. The distribution is also reflected by meaningful ranges. For example, JII fluctuates from 413.660 to 790.610, indicating notable movements in the Islamic equity market during the observation period. Skewness statistics provide information on the asymmetry of the distribution for each variable, while

kurtosis indicates whether the distribution is close to, or deviates from, a normal distribution shape. Taken together, these descriptive measures provide a complete and transparent

picture of the time-series properties and basic characteristics of each variable prior to model estimation.

Table 2. Statistical description results on time series data for 2010–2022

	LN DEP	IDEP	ROA	OEOI	FDR	NPF	JK	PR	INF	JII
Mean	8.937	5.645	1.607	81.049	93.239	3.446	2179.724	5.651	4.301	617.353
Standard Error	0.039	0.105	0.035	0.357	0.461	0.055	27.783	0.107	0.150	6.592
Median	8.893	5.735	1.700	80.511	92.723	3.234	2256.000	5.750	3.895	615.755
Standard Deviation	0.484	1.309	0.436	4.456	5.760	0.682	347.005	1.338	1.874	82.338
Sample Variance	0.235	1.712	0.190	19.855	33.178	0.465	120412.562	1.790	3.513	6779.470
Kurtosis	-0.972	-0.363	0.445	-0.284	-0.700	-0.977	1.508	-1.174	-0.443	-0.555
Skewness	-0.060	-0.392	-0.740	0.413	-0.043	0.349	-1.466	-0.145	0.507	-0.224
Range	1.914	6.064	2.440	23.070	25.841	2.849	1484.000	4.250	7.470	376.950
Minimum	8.002	2.576	0.080	70.430	78.989	2.220	1108.000	3.500	1.320	413.660
Maximum	9.916	8.640	2.520	93.500	104.830	5.069	2592.000	7.750	8.790	790.610
Sum	1394.166	880.559	250.708	12643.606	14545.267	537.638	340037	881.500	671.030	96307.140
Count	156									

Table 3. Correlation matrix

	LN DEP	IDEP	ROA	OEOI	FDR	NPF	JK	INF	PR	JII
LN DEP	1									
IDEP	-0.860	1								
ROA	0.242	-0.294	1							
OEOI	-0.094	0.117	-0.756	1						
FDR	-0.583	0.644	-0.192	0.006	1					
NPF	-0.598	0.583	-0.663	0.601	0.267	1				
JK	0.624	-0.503	-0.201	0.115	-0.004	-0.225	1			
INF	-0.529	0.494	-0.196	0.006	0.706	0.166	-0.036	1		
PR	-0.700	0.769	-0.415	0.245	0.779	0.474	-0.153	0.749	1	
JII	0.309	-0.131	-0.379	0.382	0.024	0.132	0.549	-0.045	-0.070	1

5.2 Classic assumption analysis

To ensure that the econometric results are reliable and not driven by violations of key assumptions, several diagnostic tests were conducted. First, the Kolmogorov–Smirnov normality test compares the empirical distribution of residuals with an expected normal distribution. Based on the normality test, the probability value exceeds the chosen significance level; therefore, the normality assumption is accepted. Specifically, the probability value is $0.053 > 0.05$, implying that the residuals can be treated as normally distributed for inference purposes.

Second, heteroscedasticity was examined using the White method. This procedure tests whether the variance of residuals is constant across observations. The test is implemented by regressing the independent variables with the absolute residual as the dependent term. The resulting probability value is $0.5811 > 0.05$, so H_0 is accepted. Thus, the model does not exhibit heteroscedasticity problems and satisfies the homoscedasticity requirement.

Third, autocorrelation was assessed to determine whether residuals are correlated across time, which can occur in time-series settings when successive values follow systematic patterns. Autocorrelation arises when there is a linear relationship between values in a data series over time. The Durbin–Watson statistic (DW) is 2.09. Using the commonly cited criterion that values between 1.55 and 2.46 indicate no autocorrelation, the result suggests that the model does not suffer from autocorrelation problems [54].

Finally, multicollinearity diagnostics were conducted to identify whether strong linear relationships exist among explanatory variables, which can inflate standard errors and distort coefficient interpretation. The correlation matrix in Table 3 shows that the correlation coefficients among independent variables remain below 0.9. Therefore, multicollinearity is not considered a serious issue, and the model satisfies the non-multicollinearity assumption.

5.3 Time series data analysis

In time-series models with both short-run dynamics and long-run equilibrium, the error correction term (ECT) plays a central role in capturing the speed at which the dependent variable adjusts back toward long-run equilibrium after a shock. In this study, the ECT coefficient is -0.148. This estimated coefficient indicates a relatively slow adjustment process. In practical terms, it suggests that approximately 14.8% of the deviation in deposit levels from the long-run equilibrium is corrected within one month. Apart from reflecting adjustment speed, the ECT also provides an interpretable measure of how quickly deposit dynamics respond to structural disequilibria.

In the Sharia banking system, deposit dynamics are influenced by multiple interacting factors, including interest rates, inflation conditions, depositor trust, and broader economic performance. A slow adjustment speed may indicate that the Indonesian Sharia banking sector faces structural constraints or market dynamics that lead to delayed depositor

responses to external changes. Several mechanisms may contribute to such gradual adjustment, including monetary policy transmission that may not move as quickly as shifts in financial markets, limited access to information, and differences in customer investment preferences that reduce the immediacy of portfolio reallocation. Therefore, the ECT result is consistent with an environment in which deposit behavior is shaped by both institutional and macro-financial frictions rather than instantaneous market clearing.

Based on Table 4, deposit returns have a significant positive influence on the amount of deposits in the short term. In the context of Sharia banks, deposit returns represent the realized share of profits generated through investment and financing activities, and higher returns can strengthen the immediate attractiveness of Mudharabah deposits. ROA also has a significant positive influence in the short term, indicating that stronger profitability and financial performance can support depositor confidence. Meanwhile, OEOI shows a positive influence, suggesting that changes in operational spending relative to income are associated with deposit movements; in practical terms, periods of increased operational capacity, service activity, or institutional scaling may coincide with higher deposit mobilization.

Table 4. Short term analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(IDEP)	0.031194	0.017683	1.76407	0.0801*
D(ROA)	0.053827	0.027606	1.949825	0.0534*
D(OEOI)	0.011133	0.002337	4.764285	0.0000***
D(FDR)	-0.008475	0.003068	-2.762412	0.0066***
D(INF)	0.004734	0.012465	0.379766	0.7048
D(PR)	0.014149	0.037976	0.372587	0.7101
D(JII)	0.000659	0.000237	2.782549	0.0062***
ECT (-1)	-0.147948	0.026281	-5.629409	0.000***

Notes: *** p < 0.01, ** p < 0.05, * p < 0.10.

In contrast, FDR shows a negative influence on the amount of deposits in the short term. Because FDR captures how intensively banks allocate depositor funds into financing, a higher FDR can be interpreted as tighter liquidity conditions. The results indicate that a high FDR in the previous month is correlated with a decrease in the amount of deposits in the following month, implying that depositors may respond negatively when liquidity risk appears elevated.

JII has a positive influence in the short term. The increase in JII is interpreted as strengthening economic optimism among market participants, which may encourage households and investors to place additional funds in Sharia banking deposits. Although inflation shows a positive influence in the short term, the effect is not statistically significant. Similarly, the policy rate has a positive influence but is not statistically significant for short-term Sharia bank deposits in Indonesia. Therefore, the short-run impacts of inflation and the policy rate on deposits are not supported statistically in this model. Overall, these short-run results provide detailed insights into the variables shaping short-term deposit dynamics.

More specifically, OEOI has a positive influence on deposits, where a 1% increase in OEOI is associated with an increase in deposits by 0.011133%. In line with Abusharbeh's research [20], this result can be interpreted as indicating that improved operational intensity may reflect better service

quality and stronger risk management practices that attract customers and support deposit mobilization. The JII also has a positive influence. A 1% increase in JII is associated with an increase in deposits of 0.000659%. Research by Setyowati [55], Arshed and Kalim [11], and Solarin et al. [26] supported the view that Islamic equity market conditions can be positively linked to deposit accumulation in Sharia banking contexts. In the short term, FDR has a negative influence: if FDR falls by 1%, the amount of deposits increases by 0.008475%, which is consistent with the liquidity-risk channel discussed in the study of Suliyono and Risfandy [36].

Based on Table 5, the long-term estimates suggest a different structure of relationships. Deposit returns have a significant negative influence on the amount of deposits in the long term. Even though deposit returns are not framed as conventional interest, the long-term negative association suggests that higher sustained returns may coincide with higher funding costs or altered depositor perceptions, which can weaken deposit accumulation over time. In addition, NPF has a significant negative influence in the long run, reflecting the role of risk and credit quality in shaping depositor confidence and institutional credibility. Inflation also has a significant negative influence on the amount of deposits in the long term; a sustained inflationary environment can weaken real savings incentives and can reduce the willingness of depositors to hold funds in deposit instruments over extended periods. Other variables such as JII, FDR, PR, OEOI, ROA, and number of offices do not show statistically significant long-run effects on deposits in Indonesian Sharia banks.

Table 5. Long term analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IDEP	-0.182097	0.104775	-1.737974	0.0847*
ROA	0.136544	0.30144	0.452973	0.6513
OEOI	0.034991	0.024006	1.45757	0.1474
FDR	-0.002079	0.016953	-0.122662	0.9026
NPF	-0.331021	0.136669	-2.422069	0.0169**
JK	-1.35E-05	0.000292	-0.046099	0.9633
INF	-0.120022	0.051224	-2.34308	0.0207**
PR	0.059234	0.096197	0.615758	0.5392
JII	0.001263	0.000827	1.527393	0.1292
C	7.769919	2.602767	2.985253	0.0034

Notes: *** p < 0.01, ** p < 0.05, * p < 0.10.

The long-run negative relationship between deposit returns and deposits is interpreted in the literature through different channels. One strand of reasoning highlights that return-setting in Sharia banking is closely connected to underlying operational conditions and perceived risk. If higher returns are interpreted as a response to risk or cost pressures, depositors may reduce deposit placements as returns rise. This finding is in line with Suliyono and Risfandy [56] and Mushtaq and Siddiqui [57] and contradicts Arshed and Kalim [11] and Solarin et al. [26], indicating that the sign and magnitude of the relationship can differ across institutional settings and time periods.

High levels of NPLs/NPFs can reflect problems in risk management and credit management of financial institutions. This can reduce customer trust in the institution and weaken deposit sustainability. The current result is in line with Abusharbeh [20] and contradicts Suliyono and Risfandy [56], again suggesting contextual differences in depositor sensitivity to asset-quality signals.

Finally, the long-run negative effect of inflation suggests

that macroeconomic stability is important for sustaining deposits. Low inflation tends to create economic stability, which can increase trust in the banking system and encourage households to keep funds in deposits. The results are in line with Arshed and Kalim [11] and Abduh et al. [42] and contradict Ab Rahman et al. [29] and Solarin et al. [26]. Overall, the findings indicate that short-term deposit movements are more closely linked to institutional performance and liquidity indicators, whereas long-term deposit sustainability is more strongly associated with risk exposure and macroeconomic stability.

To ensure the robustness of the estimated relationships, alternative lag specifications were examined. The main findings remain stable across different lag structures, confirming that the results are not sensitive to model specification.

6. CONCLUSION

This study contributes to the literature by integrating bank-specific risk indicators and macroeconomic variables within a unified sustainability-oriented framework. Unlike prior studies that examine these determinants in isolation, the ARDL approach allows simultaneous evaluation of short-term dynamics and long-term equilibrium adjustments. The findings demonstrate that deposit sustainability in Islamic banking is primarily shaped by asset quality and macroeconomic stability rather than solely by profitability measures. These results extend the understanding of funding resilience in emerging market Islamic financial systems.

The relatively low market share of Sharia banks in Indonesia cannot be explained solely by demographic factors, despite the country's predominantly Muslim population. One important issue concerns the public's limited ability to interpret Sharia banking financial reports. Financial statements may be perceived as complex or insufficiently transparent, which can weaken depositor confidence. In addition, limited financial literacy and insufficient communication regarding Sharia banking principles and their economic benefits contribute to reduced public participation. Strengthening transparency, simplifying financial reporting formats, and enhancing educational initiatives are therefore essential for expanding the funding base of Sharia banking institutions.

The period 2019–2022, marked by the global COVID-19 pandemic, provides an important contextual backdrop. During this period, economic uncertainty affected financial institutions worldwide, including those in Indonesia. Although profit-sharing rates declined in certain phases, deposit demand remained relatively stable, indicating a degree of structural resilience within Sharia banking. The empirical findings confirm the existence of a long-term equilibrium relationship between deposit returns, ROA, OEOI, FDR, NPF, number of offices, inflation, policy rate, and JII and the amount of deposits. In the short term, JII exerts a positive influence, suggesting that capital market optimism may strengthen deposit inflows. OEOI is positively associated with deposits, indicating that operational performance remains relevant for depositor perceptions. FDR shows a negative effect, highlighting the importance of liquidity balance in maintaining short-term funding stability.

In the long term, inflation, deposit returns, and NPF exhibit negative influences on deposit levels. These results suggest

that deposit sustainability is sensitive to macroeconomic stability and asset quality. Higher credit risk, reflected in NPF, weakens depositor trust. Sustained inflation reduces real return incentives and can discourage long-term deposit holding. The negative long-run relationship between deposit returns and deposit volume indicates that higher return commitments may be interpreted in conjunction with risk conditions or funding costs, influencing depositor behavior over extended periods. Overall, the findings demonstrate that Sharia banking deposits are responsive to institutional risk exposure and macroeconomic conditions, particularly in the long run.

From a policy perspective, several implications emerge. In the short term, Sharia banks may strengthen communication strategies related to Islamic capital market developments. Positive movements in JII can be leveraged to enhance depositor confidence and reinforce perceptions of financial sector stability. Second, operational efficiency must be managed carefully. While cost control is necessary, reductions in operational expenditures should not compromise service quality. Maintaining high-quality service and transparent governance practices is critical for sustaining depositor loyalty.

Third, liquidity management remains central. Maintaining an appropriate balance between financing expansion and deposit mobilization is essential to prevent excessive FDR levels that may undermine depositor confidence. Sound liquidity policies contribute directly to institutional resilience.

Finally, in the long term, Sharia banking institutions must prioritize asset quality management and macroeconomic risk awareness. Controlling NPF levels, maintaining prudent return policies, and adapting to inflationary pressures are necessary to safeguard deposit stability. Continuous product innovation aligned with Sharia principles, combined with financial education initiatives, can enhance public trust and contribute to stable deposit growth. Strengthening these structural elements will support the role of Islamic banking in promoting sustainable financial intermediation within Indonesia's evolving economic system.

AUTHORS CONTRIBUTIONS

Conceptualization: Rini Kurnia Sari, B. Budiono

Data curation: Rini Kurnia Sari, Rudi Kurniawan

Formal analysis: Rini Kurnia Sari, Ahmad Kemal Hidayat

Funding acquisition: Rini Kurnia Sari

Investigation: Rini Kurnia Sari

Methodology: Rini Kurnia Sari, B. Budiono

Project administration: Ahmad Kemal Hidayat, Rudi Kurniawan

Software: B. Budiono

Supervision: B. Budiono, Ahmad Kemal Hidayat, Rudi Kurniawan

Validation: Ahmad Kemal Wijaya

Visualization: Rini Kurnia Sari, Rudi Kurniawan.

Writing—original draft: Rini Kurnia Sari, B. Budiono

Writing—reviewing & editing: Rini Kurnia Sari, Achmad Kemal Hidayat, Rudi Kurniawan

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