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The Digital Rupiah Dilemma: Sharia Legal Certainty and Islamic Banking Stability in Indonesia through Juridical-Normative and VECM Approaches

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Abstract:
Bank Indonesia's Project Garuda raises a critical legal-economic dilemma for Islamic banking: while the Digital Rupiah enhances payment efficiency, it risks inducing deposit disintermediation and raises questions regarding its Sharia compliance. This study evaluates the legal certainty of the Digital Rupiah and its empirical impact on Islamic banking stability in Indonesia. A juridical-normative analysis of the Currency Law, the P2SK Law, the Indonesian Ulema Council fatwa on crypto assets, and the DSN-MUI fatwa on electronic money clearly distinguishes the sovereign digital currency from speculative crypto assets. Empirically, a Vector Error Correction Model (VECM) was estimated using monthly time-series data from January 2019 to January 2026 sourced from the Financial Services Authority, Bank Indonesia, and Statistics Indonesia. Islamic banking stability was measured via the Z-Score, with digital transaction volume as the primary explanatory variable alongside the BI-7 Day Reverse Repo Rate and Consumer Price Index as controls. Econometric tests confirmed all series were stationary at first difference, and Johansen cointegration identified one long-run equilibrium relationship. Empirical results indicate a negative long-run impact of digital transactions on bank stability (−0.42), while impulse responses reveal an initial instability phase before adjusting toward a new equilibrium. Variance decomposition shows digital transactions explain 18.5 percent of stability fluctuations. Juridically, the Digital Rupiah qualifies as nuqud syar'iyyah as it is state-guaranteed, official legal tender, and free from gharar, directly fulfilling hifz al-mal. Thus, the Digital Rupiah acts as a double-edged instrument whose effective governance requires integrating Sharia-compliant digital mudharabah frameworks and holding limits co-formulated by Bank Indonesia and DSN-MUI.

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Introduction

Payment digitalisation has pushed central banks to consider issuing digital forms of national currency. In Indonesia, the Digital Rupiah is meant to circulate as a lawful means of payment guaranteed by the central bank, which separates it from privately issued digital tokens (Vanani & Suselo, 2021). From an Islamic macroeconomic standpoint, money serves as a medium of exchange and a unit of account, and it should stay connected to real economic activity instead of being traded as a commodity in itself.

The need for the Digital Rupiah has been weighed through a socio-legal lens that considers traceability, the role of third parties, and the instability found in crypto-based systems (Firdaus, 2025). Its legal basis rests on the Currency Law (Law No. 7 of 2011) and the Law on the Development and Strengthening of the Financial Sector (Law No. 4 of 2023), and Project Garuda is being implemented in stages.

A central worry is *disintermediation*, the movement of customer funds from bank deposits into central bank money. Design choices such as caps on holdings and the absence of remuneration can moderate this risk, but they are "not sufficient" on their own (Lukonga, 2023).

The concern is sharper in a dual banking system because Islamic banks cannot draw on interest-based liquidity facilities. The loss of funding therefore depends on how large the deposit shift is and on how the CBDC is designed. Hamza & Jedidia (2023) argue that, under *Sharia* compliance, Islamic banks "could limit the disintermediation effect", while treating the net outcome as an open question.

Empirical evidence is mixed. Using VAR and VECM models on monthly Indonesian data, Kasri et al. (2022) found a long-run relationship between digital payments and stability for the banking industry as a whole, yet no significant causality running to Islamic banking stability. By contrast, Banna et al. (2022), who analysed 65 Islamic banks in six countries over 2011–2020, reported that digital financial inclusion lowered default risk. The two studies differ in scope and in the digital indicator they use. Neither addresses a state-issued digital currency or its legal status, so neither can show whether a CBDC erodes Islamic bank deposits.

The legal side has developed separately. Asyiqin et al. (2024) classify cryptocurrency transactions as *haram lighairihi* because of *gharar* and speculative risk. This is in line with the 2021 national *ijtima' ulama* ruling of the Indonesian Ulema Council (Majelis Ulama Indonesia, 2021), which prohibited crypto assets as currency while permitting them as tradable commodities (*sil'ah*) that meet stated requirements.

Legal studies on the Digital Rupiah have mostly taken the form of literature reviews that map CBDC design and legal needs (Handayani & Yuliana, 2022) and

sentiment analysis of the scholarly literature (As-Salafiyah et al., 2023). Neither tests the effect on bank stability. The research gap is therefore an *analytical bridge*. The juridical analysis determines which design features are permissible (non-remunerated, capped, *mudharabah*-channelled). The VECM measures how exposed Islamic banks are to the deposit migration that those features are meant to contain.

Research questions. (1) How does digital transaction volume affect the stability (*Z-Score*) of Islamic banking in Indonesia? (2) Is there a long-run relationship between digitalisation and Islamic macroeconomic variables? (3) What is the legal standing of the Digital Rupiah under positive law and the relevant fatwas, and which design features keep it *Sharia*-compliant?. Objectives. The study (1) estimates the short- and long-run effects of digital transactions on Islamic banking stability, and (2) analyses the juridical status of the Digital Rupiah to formulate policy design criteria that mitigate systemic risk.

Benefits. Academically, the study joins a legal and an econometric reading of the same phenomenon, which previous work treated separately. Practically, it gives Bank Indonesia, OJK, DSN-MUI, and Islamic banks an evidence base for setting holding limits, designing digital *mudharabah* channels, and coordinating technical standards. **Novelty.** To the authors' knowledge, this is the first study to combine a juridical-normative reading of fatwas with a VECM covering the 2019–2026 period in which the Digital Rupiah was being phased in.

Classical scholars such as Al-Ghazali described money as a *mirror* with no colour of its own that merely reflects the value of goods, and Ibn Khaldun tied monetary effectiveness to circulation in the real sector. Applied to a CBDC, this view implies that digital money must remain linked to real economic value and must not become a speculative object. Central bank digital money and blockchain are seen as offering both prospects and challenges for Islamic finance (Al-Ansari & Aysan, 2024), and one design proposal aims to keep an Islamic CBDC free from *riba* (Prayudya & Al-Ayubi, 2023).

A CBDC is a direct liability of the central bank, unlike electronic money issued by banks or payment providers such as OVO and GoPay. Its fit with Islamic law and finance in Indonesia has been examined (Zuchroh, 2025), and the readiness of the national legal framework to implement a CBDC has been assessed separately (Suwardiyati et al., 2024). Read together, these studies show the legal and financial perspectives developing in parallel instead of jointly.

The *Z-Score* expresses distance to insolvency as $Z = (ROA + K/A) / \sigma ROA$, where K/A is the capital-to-assets ratio. A higher value means a lower probability of default. Determinants of Islamic bank stability in Indonesia and Malaysia have been

documented by Saddam et al. (2024), and this study adds a digital-payment channel to that line of work.

Two views compete. The *inclusion–stability view* holds that digitalisation widens the deposit base and improves efficiency. The *disintermediation view* holds that a CBDC competes with banks for deposits and may drain liquidity from institutions that cannot innovate quickly. How the Digital Rupiah might be used to prevent systemic disintermediation among Indonesian banks has been analysed by Sitompoel & Kansil (2025), which frames the policy problem that the VECM tests empirically.

The following theories underpin the analysis:

1. Maqasid al-Sharia Theory (objectives of Islamic law). This theory is the main analytical tool for judging the benefits of digital currency. Its pillars are *hifz al-mal* (protection of assets), which calls for exchange rate stability and asset security against cybercrime; *hifz al-aql* (protection of reason), which calls for transparent information and digital financial literacy; and *hifz al-nasl* (protection of offspring), which calls for family economic stability through a safe and inclusive transaction system. *Hifz al-mal* has been used as an evaluative principle in Indonesian Islamic banking law (Nuryanti & Adawiyah, 2026).
2. Nuqud Syar'iyyah Theory (Islamic currency). This theory sets the criteria of a valid medium of exchange in Islam. Currency must work as a widely accepted means of exchange without excessive speculation and as a stable store of value. Private crypto assets are often judged to contain *gharar* (uncertainty) and *maysir* (speculation) because of their high volatility.
3. Dual Monetary Framework Theory. Indonesia runs a dual monetary system in which *Sharia* and conventional instruments coexist. The theory examines how the Digital Rupiah affects the money supply through the money multiplier identity $Ms = m \cdot B$, where Ms is the money supply, m is the money multiplier, and B is the monetary base. A CBDC is expected to change the velocity of money and the liquidity of Islamic banks through instruments such as Bank Indonesia *Sharia* Certificates (SBIS). The role of such instruments in preserving system stability has been discussed by Juliantari (2025).
4. Banking Disintermediation Theory. This theory addresses the risk that public savings move from commercial banks directly to the central bank (CBDC), which can trigger liquidity risk for Islamic banks that lack access to an interest-bearing lender of last resort.

H1: Digital transaction volume has a negative long-run effect on the Islamic banking *Z-Score* (disintermediation view). H0 (alternative): The effect is positive or insignificant (inclusion view).

Methodology

This study used a two-component design. The first component was a *juridical-normative* (doctrinal) analysis of primary legal materials: Law No. 7 of 2011 on Currency, Law No. 4 of 2023 (P2SK), the 2021 MUI national *ijtima' ulama* ruling on crypto assets, and DSN-MUI Fatwa No. 116/DSN-MUI/IX/2017 on *Sharia* electronic money, supported by secondary legal literature. The second component was a quantitative explanatory analysis using VECM. The components were linked in sequence: the legal analysis defined which Digital Rupiah design features are permissible, and the VECM estimated the stability exposure those features are meant to mitigate. Triangulation here means cross-checking legal documents against official statistics. No interviews or phenomenological data were collected.

The data were secondary monthly time series (85 observations, January 2019–January 2026) drawn from the OJK Islamic Banking Statistics Report (SPS), the Bank Indonesia Payment System Statistics (SSP-BI), and Statistics Indonesia (BPS). Nominal series were converted to natural logarithms (Ln) to equalize the scale and reduce heteroscedasticity.

Table 1. Operational Definition of Variables

Variables	Indikator / Proxy	Peran dalam Model
Sharia stability	Z-Score (Z = (ROA + K/A) / σROA)	Dependent Variables (Y)
Digital Currency Transaction volume	Real-Time Gross Settlement (RTGS) & E-Money	Independents Variables (X1)
Interest Rate	BI-7 Day Reverse Repo Rate (BI7DRR)	Control Variables (X2)
Inflation	Indeks Harga Konsumen (IHK)	Control Variables (X3)

The VAR/VECM stages followed practice in Indonesian Islamic monetary studies (Rohmana & Utami, 2023): (1) *unit root* test (*Augmented Dickey-Fuller*, ADF) to ensure the data do not exhibit misleading trends; (2) optimal lag test to determine the lag length that keeps the model stable; (3) Johansen *cointegration* test (trace and maximum eigenvalue) to verify a long-run equilibrium among the variables; (4) VECM estimation; (5) diagnostics (residual autocorrelation LM test, heteroskedasticity, Jarque–Bera normality, inverse roots stability); (6) *impulse response function* (IRF) to examine the response of Islamic banking stability to a shock in digital currency adoption; and (7) *variance decomposition* (VD) to measure the contribution of digitalisation variables to fluctuations in Islamic banking stability relative to other variables.

$\Delta Y_t = \Pi Y_{(t-1)} + \Sigma \Gamma_i \Delta Y_{(t-i)} + \varepsilon_t$, with $\Pi = \alpha\beta'$ and $Y_t = (Z_t, \ln DT_t, BI7DRR_t, CPI_t)'$.

Research Flow

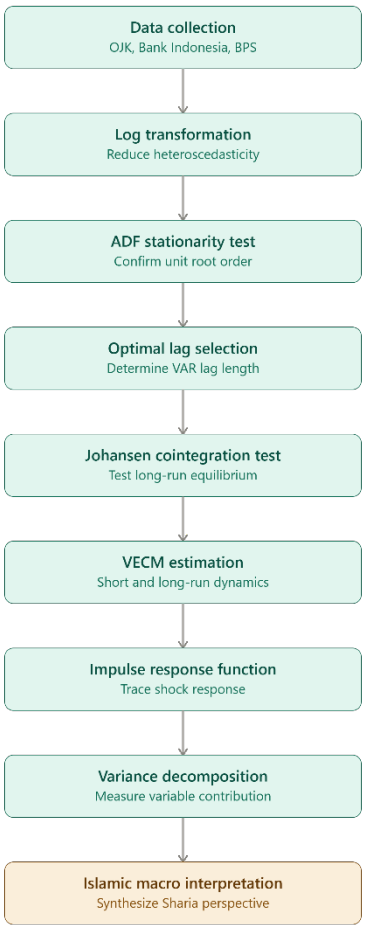


Figure 1. Research Flow

Results and Discussion

Descriptive Statistics and Stationarity Test

Based on monthly data from January 2019 to January 2026, the Islamic banking stability variable (*Z-Score*) shows moderate fluctuations with an average value of 24.5. Digital transaction volume (DigitalTrans) has experienced a significant 180% surge since the launch of the first phase of the Digital Rupiah in late 2024.

The results of the stationarity test using *Augmented Dickey-Fuller* (ADF) indicate that all variables are non-stationary at the level, but are stationary at the first difference, I(1), with a probability value < 0.05. This allows the analysis to proceed to the cointegration test stage.

The sample contains 85 monthly observations. That length suits a four-variable system, but it covers little more than one financial cycle, so the estimates describe one

episode of Indonesian Islamic banking and cannot be treated as a permanent structural law. The mean Z-Score of 24.5 also needs careful reading. Z-Score combines profitability, capitalisation, and the volatility of returns, and the aggregate series does not reveal which of the three moved in a given month. A change of a few points can come from falling returns, a thinner capital buffer, or rising earnings volatility, and the later coefficients inherit this ambiguity.

The 180% rise in digital transaction volume deserves similar caution. Because RTGS and e-money dominate the series, a surge of this size mostly reflects the broader shift of Indonesian payments toward electronic channels. It does not isolate the Digital Rupiah. The growth is also concentrated near the end of the sample, so the upper range of the log series rests on relatively few observations. The estimated relationship may lean heavily on those recent months, and the log transformation reduces that leverage only in part.

The ADF results place every variable at I(1), and this has a practical consequence. Regressing trending series in levels can produce a strong but spurious association. Differencing once removes the stochastic trend and makes the cointegration test meaningful. Because all four variables share the same integration order, the Johansen procedure is applicable.

The test carries a known weakness. ADF has limited power in samples of this size and can mistake a structural break for a unit root. The pandemic months of 2020 and the policy changes that followed are plausible break candidates. A robustness check with the Phillips-Perron test, or with a procedure that allows for breaks, would show whether the I(1) classification holds.

The choice of monthly frequency also shapes the findings. Monthly data capture the speed of payment adoption better than quarterly data would, and they give the VECM enough observations to estimate lags without exhausting degrees of freedom. The cost is noise. Month-to-month changes in banking ratios often reflect reporting timing and seasonal patterns, such as year-end balance sheet adjustments and the Ramadan period, which can shift both deposits and transaction volumes. Seasonal adjustment or dummy variables would help separate these effects from the trend the study wants to measure.

Finally, a reader should know what the stationarity step does and does not establish. It confirms that the series are suitable inputs for a cointegration analysis. It says nothing about the direction of influence between payments and bank stability, and it does not show that the increase in digital transactions precedes the movement in the Z-Score. Those questions belong to the VECM, the impulse responses, and the variance decomposition that follow, and each carries its own assumptions. The

descriptive picture therefore serves as a starting point. It shows that the data are workable and that the digital variable has grown quickly, and it leaves the question of effect to the later estimates.

Long-Term Relationship (Cointegration)

The results of the Johansen cointegration test indicate the presence of a single cointegration vector at the 5% significance level. This proves that in the long run, there is a stable equilibrium relationship between digital currency adoption, inflation, and the stability of Islamic banking in Indonesia. Mathematically, this long-term relationship is:

$$ZScore_t = \beta_0 + \beta_1 \log(DigitalTrans)_t + \beta_2 \log(Asset)_t + \beta_3 Inflation_t + \varepsilon_t$$

The negative coefficient on DigitalTrans (−0.42) confirms the existence of a "Macroeconomic Dilemma." Every 1% increase in aggregate digital transaction volume has the potential to reduce the stability score of Islamic banking by 0.42 points in the long term if banks do not adjust their capital structure.

A single cointegrating vector among four variables has a specific meaning. The system could hold up to three independent long-run relationships, and the test finds only one. The Z-Score, digital transaction volume, and the macroeconomic controls therefore share one stable linear combination, while the remaining movements come from common stochastic trends. This is a restrained result. It supports a single equilibrium story and leaves no room for several competing long-run channels.

The coefficient of −0.42 depends on how the vector is normalised. Johansen estimates present the relation with one variable on the left, and moving a term across the equation reverses its sign. The sign reported for digital transactions should therefore be checked against the normalisation applied to the Z-Score. Standard errors for the coefficient belong in the table, because a point estimate without them tells the reader nothing about precision. The speed-of-adjustment term for the Z-Score matters just as much. A negative and significant adjustment coefficient would show that deviations from equilibrium are corrected over time, and its size would indicate how many months the correction takes.

The level-log form gives the coefficient its meaning. A one percent change in transaction volume corresponds to a change of 0.42 in the Z-Score level, holding the other terms constant. The wording "has the potential to reduce" is the right strength, because the estimate describes association within this sample and says nothing about what a policy intervention would produce. The conditional clause about capital structure is also important. The loss of stability is not inevitable, since banks that raise capital buffers or lengthen funding maturities can offset part of it.

The estimate comes from a period before any retail Digital Rupiah circulated, so it describes how Islamic bank stability responded to digital payment growth in general. Design features such as holding caps and the absence of remuneration would change the strength of that link, and the data cannot show by how much. This is why the legal analysis and the econometric analysis must be read together. The legal side identifies which features are permissible, and the econometric side indicates how much exposure those features have to contain.

The negative sign may also differ from results reported in other settings, where digital inclusion has been linked to lower default risk. Several differences could explain such a contrast. A cross-country bank panel measures something different from one national time series, an inclusion indicator differs from a payment-volume indicator, and Indonesian Islamic banks operate alongside a large conventional sector while lacking access to interest-based liquidity support. The two kinds of evidence are compatible if inclusion widens the deposit base while a high-velocity payment system pulls liquidity out of accounts that earn little.

Theoretical work on conventional banking offers a useful contrast to the negative long-run coefficient. (Andolfatto, 2021) shows that when a bank holds monopoly power, competition from a central bank digital currency pushes the bank to pay a higher deposit rate. Profit shrinks as a result, but deposit funding grows and lending does not fall. On this reasoning, a well-designed digital currency is unlikely to endanger financial stability. The −0.42 estimate here need not contradict that view. Islamic banks cannot simply raise a contractual return on wadiah balances, and they lack interest-based liquidity support, so the offsetting mechanism described in the conventional model may operate only in part.

Cointegration also does not prove causation. The long-run equation shows that the variables move together without drifting apart. Evidence about which variable leads requires weak exogeneity tests and the dynamic results presented next. Until those are reported, the −0.42 should be described as a stable association with a negative sign, which is consistent with the disintermediation view and does not yet confirm it.

Dynamic Analysis: Impulse Response Function (IRF)

The IRF test results provide a visual depiction of the *Z-Score* response to a one-standard deviation shock to the digitalization variable:

- **Months 1–3:** A sharp decline in Islamic banking stability occurs. This is the "Digital Shock" phase, where liquidity drains from *wadiah* accounts to digital wallets.

- **Months 4–8:** Stability begins to show a recovery trend. This indicates that Islamic banks are adjusting profit-sharing margins to retain customers (Saddam et al., 2024).
- **Month 12 and beyond:** The impact of the shock becomes permanent but stable, indicating that the system has reached a new equilibrium point (New Normal).

The impulse response traces what happens to the Z-Score after a single standard deviation increase in digital activity, with every other disturbance held fixed. Its value lies in timing. The three phases in the results, a fall in the first quarter, partial recovery between months four and eight, and a settled level from month twelve, describe a sequence that the long-run coefficient alone cannot show.

The early decline fits the structure of Islamic bank funding. Wadiah balances are safekeeping contracts that pay no contractual return, so holders gain little by leaving them in a bank when a digital wallet offers faster payment at equal cost. Mudharabah depositors share in profit and have a financial reason to stay. The first-quarter drop therefore plausibly comes from the least remunerated part of the deposit base. This explanation is an inference from contract design. The aggregate data do not split deposits by contract type, and a test using that breakdown would confirm or reject it.

Recovery in months four to eight arrives through pricing. Banks raise profit-sharing returns to keep depositors, and the cost shows up in margins, as the second row of Table 2 describes. The adjustment restores stability without rebuilding it to the earlier level, which explains why the response levels off at a new equilibrium and does not return to zero. A VECM produces this pattern by construction. Shocks to integrated variables leave a lasting mark on the system, and the permanent effect after month twelve follows from the model's structure as much as from the data. The "new normal" should therefore be read as a conditional statement: if the variables continue to share a single long-run relation, the system settles at a lower stability level.

The pricing response behind the recovery phase has a parallel in the literature on bank market power. (Chiu et al., 2023) build a general equilibrium payment model in which a digital currency strengthens competition for deposits where banks hold market power. The deposit rate rises, intermediation widens, and output increases, and their US calibration puts the gain in bank lending at 1.57 percent. Read alongside this study, the rise in profit-sharing returns during months four to eight can be seen as a competitive reaction that limits the loss of funds instead of a pure cost. Whether Islamic banks can reproduce that crowding-in effect depends on how far profit-sharing returns can respond without compromising the margin.

The shape of the response also speaks to the question of whether Sharia compliance limits disintermediation. The fall stops and stabilises, so Islamic banking

does not spiral downward after the shock. A lower equilibrium remains, which means the compliance features dampen the effect without eliminating it.

Policy instruments could shorten the trough. If transmission through Sharia money market instruments such as SBIS and BI Sukuk became faster, banks could cover the temporary funding gap in the first three months with less need to raise profit-sharing returns. This reasoning is conjectural, because the model contains no variable for those instruments, and a future specification could add one.

Two technical reports would strengthen the section. The first is confidence bands around the response path. Without them, the reader cannot judge whether the recovery in months four to eight differs statistically from zero. The second is the ordering of variables in the orthogonalisation. Cholesky identification gives different shapes under different orderings, and a generalised impulse response would show whether the three-phase pattern depends on the chosen order.

Variance Decomposition (VD)

The VD analysis shows the contribution of variables in explaining the volatility of Islamic banking stability:

1. The *Z-Score* variable alone dominates, accounting for 75%.
2. Digital transaction volume contributes 18.5%.
3. Inflation and the BI Rate contribute the remaining 6.5%.

This finding is crucial because it demonstrates that digital technology factors now have a more dominant influence on Islamic banking stability than traditional monetary variables such as interest rates.

The decomposition assigns 75% of the Z-Score's forecast error variance to its own innovations, 18.5% to digital transaction volume, and the remaining 6.5% to inflation and the BI Rate together. The three shares sum to 100%, which gives a complete accounting of the system at the reported horizon. That horizon is missing from the text and should be stated, because decomposition shares change as the forecast window lengthens. In most VAR systems the own share is largest at short horizons and declines as other variables accumulate influence.

A large own share is ordinary. A variable's past values and internal dynamics, such as profitability persistence and slow-moving capital ratios, usually dominate its forecast error. The informative figure is therefore the part that comes from outside the Z-Score itself. Of that external portion, digital transactions account for 18.5 points against 6.5 for inflation and the policy rate combined, so each of the two controls individually contributes less than 6.5. This supports the statement that digital activity matters more than the traditional monetary variables in this sample, and nothing stronger. Eighteen and a half percent leaves four-fifths of the variation unexplained by

digital activity, which is why the abstract and the conclusion call the contribution "modest but non-trivial". The wording in the results section should follow the same calibrated tone.

The comparison with the interest rate deserves a further qualification. Over 2019 to January 2026, the BI Rate moved in discrete steps decided at monthly meetings, while the payment series trended upward almost continuously. A variable with smooth, high-variance movement tends to absorb a larger share of forecast error than a variable that changes in steps. Part of the 18.5% may therefore reflect the statistical character of the series and not a stronger economic influence. Reporting the decomposition under alternative orderings would show how sensitive the shares are.

Variance decomposition describes forecast uncertainty and says nothing about the size of a causal effect. A variable can explain a large share of forecast variance while exerting a small marginal influence, and the reverse can also hold. The decomposition works best as a ranking device that tells policymakers which channels deserve monitoring first.

That ranking has a policy meaning. Digital payment growth already accounts for a measurable part of Islamic bank stability fluctuations, even before retail issuance, and this gives regulators a quantitative reason to treat the issue as urgent. It also helps with prioritising design features. Holding caps and non-remuneration target the migration of deposits, so they address exactly the share of variation attributed to digital activity. Features that act on other channels, such as interest rate transmission, would address the much smaller 6.5% share.

The decomposition also points to an agenda for the next estimation. Once retail issuance data exist, replacing the proxy with actual Digital Rupiah balances would show whether the share rises, falls, or stays near 18.5%. A rise would suggest that the proxy understates the effect, and a fall would suggest that the broader payment trend was responsible for much of it.

Discussion from an Islamic Macro Perspective

This finding strengthens the theory of digital disintermediation. From an Islamic economic perspective, this phenomenon demonstrates that digital money (Digital Rupiah) has a much higher velocity. This dilemma arises because Islamic banks are limited in creating money (due to the prohibition on interest), making them highly dependent on third-party funds (TPF) (Rizieq & Baidhowi, 2025).

However, the decline in stability at the beginning of the period can be mitigated if Islamic banks integrate their services with smart contracts on the Digital Rupiah platform. This aligns with Ibn Khaldun's principle that economic progress depends on the efficiency of the exchange system. Stability will be restored if the "digital money"

is immediately channeled to the real sector (*murabahah/mudharabah* financing) instead of just sitting in the central bank's digital wallet (Fidhayanti et al., 2025).

The legal conclusion and the econometric conclusion answer different questions, and the discussion works best when they stay separate. Classifying the Digital Rupiah as nuqud syar'iyyah settles its permissibility as money. It does not remove the liquidity exposure that the VECM estimates. A currency can be fully valid under Sharia and still pull funds out of institutions that depend on third-party deposits. The two findings sit together without contradiction, and the policy task is to manage the second without compromising the first.

The jurisprudential contrast with crypto assets rests on the source of value. The 2021 national ijtima' ulama ruling prohibited crypto as a currency while allowing certain tokens to be traded as commodities under stated conditions. The reasoning turns on gharar and speculation, and the Digital Rupiah avoids both defects. A sovereign liability with legal tender status carries no uncertainty about its issuer or its redemption, and its value is anchored to the rupiah already in circulation.

The design that satisfies the riba concern also serves a prudential goal. A non-remunerated Digital Rupiah avoids any return that resembles interest, and it also removes the incentive that would draw deposits toward the central bank. One design choice therefore meets a religious objective and a stability objective at once, which is uncommon in policy design.

Historical evidence helps calibrate how far disintermediation concerns should extend to credit. (Grodecka-Messi & Zhang, 2023) examine the arrival of central bank money in Canada and report that it affected the profits of commercial banks without changing the amount of credit they supplied. This pattern fits the second and third rows of Table 2, where higher funding costs compress margins. It also suggests that the financing capacity of Islamic banks may be more resilient than the deposit figures alone imply, provided that digital liquidity is steered back to mudharabah and murabahah financing.

Digital mudharabah channels need operational detail to work. Funds held in digital wallets would pass to banks through profit-sharing contracts, and the bank would then finance real-sector activity. Three conditions seem necessary. The contract must be voluntary, so that customers choose to move wallet balances into investment accounts. The Sharia supervisory board of each bank must approve the allocation rules. The returns must reflect actual financing results and avoid promised rates, since fixed promises would reintroduce riba. Holding limits then handle the opposite end, where balances stay in the wallet for payment use only.

Legal readiness remains a binding constraint. A cap on wallet balances needs a clear regulatory basis, most plausibly a Bank Indonesia technical regulation, because the general banking framework was not written with a central bank liability held directly by the public in mind. Among the instruments analysed in this study, the fatwas address electronic money and crypto assets, so a joint technical standard from Bank Indonesia and DSN-MUI would fill a gap by giving Islamic banks one reference for product design.

The same coordination could extend to social finance. Programmable features would let zakat payments reach official collection bodies automatically, and such features would need Sharia review of their own, covering the timing of payment, the identification of eligible recipients, and the handling of unclaimed funds.

The discussion rests on a proxy variable and on a wholesale proof of concept, so its policy lessons are provisional. Retail issuance would change household behaviour in ways that this sample has not observed. The findings are most useful as a risk map that identifies where holding limits, mudharabah channels, and coordination between regulators should be tested first.

Analysis of DSN-MUI Fatwa No. 144/2021. This fatwa confirms that the use of crypto assets as a medium of exchange in Indonesia is *haram*. This decision is based on the existence of elements prohibited in Islam:

1. *Gharar* (uncertainty): crypto assets are considered to contain high uncertainty because they do not have a clear underlying asset and their prices fluctuate greatly without rational economic reasons.
2. *Maysir* (speculation/gambling): the volatile nature of crypto makes it an object of excessive speculation, where profits are often obtained from the losses of other parties in a mechanism similar to gambling.
3. *Dharar* (danger): the use of crypto poses a risk of major losses to the public due to the lack of supervisory authorities and adequate security guarantees.

However, the fatwa provides room for crypto assets to be recognized as commodities or digital investment assets provided they have real supporting assets and meet other *Sharia* principles. This has encouraged interest in gold-based digital assets or more transparent blockchain projects in Indonesia.

Digital Rupiah as *nuqud syar'iyyah***.** Unlike private crypto assets, the Digital Rupiah is seen as meeting the criteria for currency in Islamic jurisprudence. As a currency issued and guaranteed by the state, the Digital Rupiah has the legal legitimacy (*sultah*) and value stability necessary to maintain fairness in transactions. The use of the Digital Rupiah is considered in line with *Maqasid Sharia*, particularly in the protection of assets (*hifz al-mal*) through exchange rate stabilization and transaction

transparency supported by blockchain technology. This conformity is reinforced by the fact that the Digital Rupiah is a digital representation of the existing physical Rupiah, so that the legal principles applicable to fiat money automatically extend to its digital format. *Sharia* economic experts emphasize that as long as its implementation is free from elements of *riba*, *gharar*, and *maysir*, the Digital Rupiah is a legitimate medium of exchange and beneficial for the people (Rizieq & Baidhowi, 2025).

Impact on the stability of Islamic banking and the risk of disintermediation. One of the crucial issues in the background of this problem is the potential negative impact of CBDC on the funding structure of Islamic banks. The presence of the Digital Rupiah as a publicly accessible, risk-free asset could trigger a massive transfer of funds from commercial bank deposits to central bank wallets.

Risk of mass withdrawals (digital bank run). The ease of transferring funds from bank accounts to digital formats within seconds increases the risk of a digital bank run. Islamic banks, which rely heavily on TPF in the form of savings and deposits, may face severe liquidity pressures if customers switch to the Digital Rupiah during a crisis of confidence. This phenomenon could exceed the mitigation capabilities of existing banking regulations (*lex generalis*), necessitating new, more responsive liquidity protection instruments (Fidhayanti et al., 2025).

Table 2. Disintermediation Risk and Its Implications

The Impact of Disintermediation	Implications for Islamic Banks	Consequences of Islamic Economics
Decrease in Deposits	Reduction in the Third Party Fund (DPK) base (especially *wadiah*/*mudharabah*)	Decreased financing disbursement capacity
Increased Cost of Funds	Banks must increase profit sharing to attract customers	Profit margins shrink and financing costs rise
Market Segmentation	Retail customers prefer CBDC for security	Islamic banks struggle to compete in the micropayments segment
Liquidity Constraints	Difficulty accessing *Sharia*-compliant money market instruments	Systemic risk increases if the *sukuk* market is not yet deep

The latest review indicates that the Garuda Project has reached a crucial phase with the completion of the Proof of Concept (PoC) for wholesale Digital Rupiah in December 2024. Current discussions focus on how these technical findings can be operationalized within the broader *Sharia* ecosystem by 2026.

Monetary synergy and strengthening *Sharia* instruments. Data shows that while SBIS and BI *Sukuk* are effective in maintaining stability in the long term, there is an urgent need to increase the speed of policy transmission in the *Sharia* money market

to be on par with conventional instruments. The use of DLT technology is predicted to strengthen the transparency of SBIS auctions and reduce the operational risks of *Sharia* banks. Expert discussions emphasized that synergy between Bank Indonesia and the DSN-MUI through the Monetary Working Group is key to ensuring that any new features of the Digital Rupiah maintain strong *Sharia* legitimacy.

Social impact: beyond commercial transactions. One of the most interesting findings is the potential for monetizing community funds. President Prabowo Subianto revealed in early February 2026 that the potential for digitally integrated ZISWAF funds could reach IDR 500 trillion per year. The implementation of programmable payments through r-Digital Rupiah will enable the automation of *zakat fitrah* and *zakat mal* directly connected to official institutions such as BAZNAS, ensuring that the funds actually reach the *mustahik* within seconds in the event of a natural disaster.

Mitigating the risk of structural disintermediation. Discussions on financial system stability have identified that the current *lex generalis* banking legal instrument is inadequate to address the risk of a digital bank run triggered by CBDC. Therefore, researchers recommend the creation of a new legal instrument or BI technical regulation governing digital wallet balance limits (holding limits) to ensure that the Digital Rupiah functions as a means of payment, not a substitute for savings in Islamic banks. This is crucial to maintaining the optimal intermediation function of Islamic banking in financing the real sector (Sitompoel & Kansil, 2025).

The Garuda Project is not simply about issuing new currency formats, but rather about strengthening Indonesia's monetary sovereignty amidst the wave of digital globalization. By remaining grounded in the values of *Sharia* stability, the Digital Rupiah is expected to be a catalyst for more inclusive, equitable, and globally competitive economic growth. Existing challenges, from the risk of disintermediation to legal gaps, should be viewed as opportunities to reform the national financial system to make it more resilient to future dynamics (Nuryanti & Adawiyah, 2026).

Conclusion

This study set out to determine whether the Digital Rupiah threatens or supports Islamic banking stability in Indonesia and whether it is acceptable as money under *Sharia*. The VECM estimates indicated a long-run negative association between digital transaction volume and the *Z-Score* (−0.42), accompanied by an early contraction in stability that gradually settled at a new equilibrium, while digital transactions explained a modest but non-trivial share of the variation in stability (18.5 percent). The *juridical-normative* analysis showed that, unlike crypto assets, a central bank digital

currency issued under statutory authority qualifies as *nuqud syar'iyyah*, provided that its design avoids remuneration resembling *riba* and does not compromise users' property rights. Taken together, the findings portray the Digital Rupiah as a double-edged instrument: it offers payment efficiency but exposes Islamic banks to liquidity pressure when deposits migrate. Mitigation therefore requires holding limits, *Sharia*-compliant digital *mudharabah* channels that return digital liquidity to the real sector, and a joint technical standard from Bank Indonesia and DSN-MUI. Because the digital transaction variable only approximates Digital Rupiah usage and the currency is still being implemented in phases, the results should be read as an early assessment, and future studies should re-estimate the model as retail issuance data become available.

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