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# Islamic performance index and profitability with the moderating role of intellectual capital in Indonesian Islamic banks

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ABSTRACT

This study analyzes the influence of the Islamic Performance Index (IPI) and Intellectual Capital (IBVAIC) on profitability (Return on Assets), as well as the moderating role of IBVAIC, at 10 Islamic Commercial Banks (ICBs) in Indonesia from 2019 to 2024. Using a quantitative approach with a Common Effects Model (CEM), the results show that the independent variables collectively have a significant effect on the dependent variable. An R-squared value of 0.5610 indicates that the model explains 56.10% of the variation in the dependent variable. Partially, the Profit Sharing Ratio and Equitable Distribution Ratio show a significant negative influence. The study also finds that IBVAIC significantly moderates the relationship between all IPI indicators and profitability. This moderation is negative for the Profit Sharing, Zakat Performance, and Equitable Distribution ratios, but positive for the Islamic Income vs. Non-Islamic Income ratio. The findings highlight the complex interplay between Sharia compliance, intellectual capital, and financial performance. This study has significant policy implications, suggesting that bank management and regulators must strategically align intellectual capital management with Sharia principles to optimize profitability.

## Introduction

Amidst the dynamic Indonesian banking sector, Islamic banking increasingly plays a strategic and vital role in the national financial landscape. Its development has shown significant growth, reflected in the steady increase in assets, financing, and third-party funds, positioning it as a key pillar of economic development aligned with Islamic ethical principles (Ahsan & Qureshi, 2022). This expansion demonstrates growing public demand for Islamic-compliant financial services, creating a unique ecosystem that integrates spiritual values with economic activity. For every financial institution, including Islamic banks, profitability is a crucial indicator reflecting operational efficiency, long-term sustainability, and overall health. A bank's ability to generate consistent profits ensures its sustainability, its capacity to weather economic turmoil, and its ability to expand services to the wider community. Specifically, Return on Assets (ROA) is widely recognized as a key proxy for profitability, reflecting a bank's effectiveness in utilizing its assets to generate profits (Hatta, 2024; Putri et al., 2025).

Unlike conventional banks, which are driven by maximizing shareholder wealth through interest-based transactions, Islamic Commercial Banks (ICBs) operate with a fundamentally different paradigm, firmly rooted in Sharia principles. The fundamental objective of ICBs is not solely oriented towards financial profit but also encompasses social welfare, justice, and ethical behavior (Hamsyi, 2019; Nugroho, 2022). These unique characteristics require ICB to adhere to the prohibitions on riba (interest), gharar (excessive uncertainty), and maysir (gambling). As alternatives, they rely on profit-sharing, fee-based services, and ethical investment (Ahsan & Qureshi, 2022). Consequently, ICB performance measurement cannot solely reflect conventional metrics but requires a comprehensive framework, such as the Islamic Performance Index, to measure compliance with Sharia values alongside financial results. Furthermore, intellectual capital (which encompasses human, structural,

and relational capital) is recognized as an invaluable asset that significantly impacts a bank's ability to innovate, build customer loyalty, and improve operational efficiency (Asutay & Ubaidillah, 2024; Prasojo et al., 2022). Understanding how these distinctive sharia operations and intangible assets collectively impact the profitability of Islamic banks in Indonesia is crucial for their strategic development and long-term success.

**Table 1.** Performance of Islamic Banking 2020-2024

| | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|
| Islamic Commercial Banks (ICBs) | | | | | |
| Total Assets (IDR Billion) | 397,073 | 441,789 | 531,860 | 594,709 | 664,611 |
| ROA (%) | 1.40 | 1.55 | 2.00 | 1.88 | 2.07 |
| Islamic Business Units (IBUs) | | | | | |
| Total Assets (IDR Billion) | 196,875 | 234,947 | 250,240 | 274,277 | 290,652 |
| ROA (%) | 1.81 | 2.05 | 1.69 | 1.79 | 1.97 |

Source: OJK Annual Report 2024

The data in Table 1 shows that Indonesia's Islamic banking sector experienced consistent and dynamic growth from 2020 to the 2024 projection, despite fluctuations in its profitability. The total assets of both Islamic Commercial Banks (ICBs) and Islamic Business Units (IBs) increased every year. Assets of ICBs saw a significant jump from Rp397.073 billion in 2020 to Rp664.611 billion in 2024, while IBSs ' assets also grew from Rp196.875 billion to Rp290.652 billion. In terms of profitability, as measured by ROA (Return on Assets), the trend was slightly more varied. The ROA for ICBs increased from 1.40% in 2020 to a peak of 2.00% in 2022, then slightly decreased to 1.88% in 2023 before being projected to recover to 2.07% in 2024. Meanwhile, the ROA of IBUs experienced a strong increase from 1.81% in 2020 to 2.05% in 2021, before dropping to 1.69% in 2022 and rising again in the subsequent years. These fluctuations indicate a dynamic management of efficiency, but overall, the financial performance of the Islamic banking sector remains healthy and expansive.

The Islamic Performance Index (IPI) is a distinctive performance measurement tool for Islamic banks, as it evaluates both financial aspects and adherence to Sharia principles (Afandi & Haryono, 2022; Mayasari, 2020). In this study, IPI is measured through four key indicators: Profit Sharing Ratio (PSR), which reflects profit-sharing in financing (Hatta, 2024; Isnaini & Nila Saadati, 2023); Zakat Performance Ratio (ZPR), which measures zakat management and distribution (Hatta, 2024; Sari & Aisyah, 2022); Equitable Distribution Ratio (EDR), which assesses fairness in income distribution (Nugroho, 2022); and the Islamic Income vs Non-Islamic Income Ratio (IIcR), which evaluates Sharia-compliant income (Khan & Zahid, 2020; Mnif & Tahari, 2023). Together, these indicators capture the bank's commitment to Islamic values alongside profitability goals.

Intellectual Capital (IC) is recognized as a critical intangible asset in the knowledge-based economy, including in Islamic banking (Asutay & Ubaidillah, 2024; Hadi et al., 2024). It includes human, structural, and relational capital (Chinnasamy et al., 2024; Prasojo et al., 2022). This study applies the Islamic Banking Value Added Intellectual Capital (IBVAIC) model, which measures IC's contribution within a Sharia framework. IC supports innovation, enhances efficiency, and improves human resource quality in line with Islamic values (Adznan et al., 2023; Al-Rabiee & Naji, 2025; Buallay et al., 2021; Faiza, 2024). Effective IC management is therefore essential for Islamic banks to achieve optimal and sustainable performance.

Previous research on the relationship between IPI and profitability (ROA) has yielded mixed results (Afandi & Haryono, 2022; Mayasari, 2020). While some studies confirm a positive effect of IPI indicators, such as PSR and ZPR, on profitability (Isnaini & Nila Saadati, 2023; Sari & Aisyah, 2022) but others show insignificant or even negative results. Research on IC similarly highlights its role in profitability through innovation and efficiency (Asutay & Ubaidillah, 2024; Chinnasamy et al., 2024), and in some cases as a mediator or moderator (Mawutor et al., 2023; Qomariah & Nursaid, 2025). However, limited research integrates IPI indicators with IC to fully understand their combined influence on the profitability of Islamic commercial banks in Indonesia.

Theoretically, IPI indicators are expected to positively affect profitability. High PSR can attract ethically motivated investors (Hatta, 2024; Putri et al., 2025). Strong ZPR enhances reputation and trust (Lestari et al., 2025; Sari & Aisyah, 2022). EDR ensures fairness in income distribution, supporting an

ethical image (Hamsyi, 2019; Nugroho, 2022). Meanwhile, IIcR maintains Sharia compliance and customer trust (Khan & Zahid, 2020; Mnif & Tahari, 2023). Together, these indicators not only strengthen financial performance but also ensure alignment with Islamic values.

Intellectual Capital (IBVAIC) is expected to drive profitability directly and to strengthen the IPI-profitability relationship. Human capital fosters better Sharia-compliant product innovation (Al-Rabiee & Naji, 2025; Faiza, 2024), while structural and relational capital enhance decision-making and service quality (Prasojo et al., 2022). IBVAIC thus provides banks with the capability to translate IPI implementation into higher profits by boosting trust, innovation, and operational effectiveness (Afandi & Haryono, 2022; Qomariah & Nursaid, 2025). Consequently, IC serves as a catalyst that enhances the financial benefits of Sharia adherence (AlObaid et al., 2025; Assakaf Ebrahim et al., 2025).

This study's novelty lies in its focus on the moderating role of IBVAIC in the relationship between IPI and profitability in Indonesian Islamic commercial banks. While previous research has considered IPI and IC separately (Afandi & Haryono, 2022; Mayasari, 2020), few studies have examined their interaction in detail (Isnaini & Nila Saadati, 2023; Qomariah & Nursaid, 2025). This research also applies static panel analysis to control inter-bank heterogeneity (Hadi et al., 2024; Prasojo et al., 2022). The objectives are threefold: (1) analyze the influence of IPI on ROA, (2) analyze the influence of IC (IBVAIC) on ROA, and (3) examine IC's moderating role in the IPI-ROA relationship. By addressing these aims, the study contributes to theory and practice, offering insights for both management and regulators to strengthen ISR integration and profitability in Islamic banking.

## Literature Review

### Profitability (ROA)

Profitability is one of the main indicators for assessing the financial performance of banks, particularly Islamic banks, which have characteristics distinct from conventional banks. Return on Assets (ROA) is used as a measure of how well a bank can generate profits from its total assets. According to Hamsyi (2019), the profitability level of Islamic banks is influenced by compliance with Sharia principles and good governance. Nugroho (2022) also found that achieving maqasid al-shariah can enhance financial performance as reflected in ROA. In the context of Islamic banking, ROA serves as an important benchmark for evaluating management effectiveness in utilizing available resources to generate sustainable profits without violating Sharia principles.

In addition, Ahsan & Qureshi (2022) demonstrated that a strong Islamic banking business model and the development of Islamic finance contribute to profitability improvement, including through the ROA indicator. This aligns with the findings of Khan & Zahid (2020), who emphasized that good Sharia governance increases customer trust, thereby improving financial performance. ROA is also influenced by external factors such as competition levels and macroeconomic conditions, which can affect a bank's ability to generate profits (Zheng et al., 2024). Thus, ROA not only reflects internal performance but also demonstrates the resilience of Islamic banks to external environmental dynamics.

### Islamic Performance Index

The Islamic Performance Index (IPI) is a measurement instrument for Islamic banking performance that emphasizes Sharia principles in financial activities. One component is the Profit Sharing Ratio (PSR), which reflects the extent to which banks apply profit-sharing principles compared to financing instruments based on trade or lease contracts. Hatta (2024) emphasized that PSR has a significant relationship with bank profitability through ROA, as profit-sharing mechanisms are considered fairer and reflect Sharia compliance. Sari & Aisyah (2022) also noted that an increase in PSR can strengthen the market share of Islamic banks by enhancing public trust. Therefore, PSR is not only an indicator of Sharia compliance but also an instrument that can improve competitiveness in the banking industry.

Another component of IPI is the Zakat Performance Ratio (ZPR), which measures the extent to which banks fulfil their zakat obligations. Isnaini & Nila Saadati (2023) stated that ZPR plays an important role in strengthening the social legitimacy of Islamic banks while increasing customer trust. Putri et al. (2025) also showed that ZPR contributes to profitability, as transparency in zakat management can attract customer loyalty, particularly those who value Islamic principles. Lestari et al. (2025) added that zakat disclosure and Islamic social responsibility positively impact bank

profitability. Thus, ZPR serves as a strategic instrument that not only represents Sharia obligations but also strengthens stakeholder relationships.

The Equitable Distribution Ratio (EDR) is another key element of IPI that reflects income distribution equity. According to Mayasari (2020), EDR indicates the extent to which Islamic banks distribute income fairly to stakeholders, including shareholders, employees, and society. Afandi & Haryono (2022) emphasized that EDR has a positive relationship with profitability, as fair distribution enhances bank reputation and builds public trust. This finding is reinforced by Nugroho (2022), who stated that achieving maqasid al-shariah, including distributive justice, can improve competitiveness and sustainability. Therefore, EDR not only reflects financial performance but also embodies social justice values central to Islamic banking.

In addition to PSR, ZPR, and EDR, the Islamic Income vs Non-Islamic Income Ratio is an important IPI indicator that assesses the extent to which bank income is derived from Sharia-compliant activities. Isnaini & Nila Saadati (2023) found that higher Islamic income strengthens profitability and reduces reputational risk. Mnif & Tahari (2023) further highlighted that compliance with AAOIFI standards enhances financial performance through stronger Islamic income ratios. Mayasari (2020) added that this ratio plays a critical role in maintaining Islamic banks' integrity and ensuring long-term sustainability. Thus, the Islamic vs non-Islamic income ratio is a key indicator that underscores banks' commitment to fully adhering to Sharia principles.

$H_1$: The Profit Sharing Ratio (PSR) has a positive effect on the profitability of Islamic Commercial Banks in Indonesia.

$H_2$: The Zakat Performance Ratio (ZPR) has a positive effect on the profitability of Islamic Commercial Banks in Indonesia.

$H_3$: The Equitable Distribution Ratio (EDR) has a positive effect on the profitability of Islamic Commercial Banks in Indonesia.

$H_4$: The Islamic Income vs Non-Islamic Income Ratio has a positive effect on the profitability of Islamic Commercial Banks in Indonesia.

**Intellectual Capital**

Intellectual capital (IC) has become one of the key factors in enhancing the competitiveness and financial performance of Islamic banks. Asutay & Ubaidillah (2024) argued that IC performance significantly influences bank profitability, as IC includes human capital, structural capital, and relational capital, which together create added value. Prasojo et al. (2022) noted that cross-regional comparisons indicate that Islamic banks with stronger IC management tend to outperform others. Furthermore, Buallay et al. (2021) found that IC is closely related to employee productivity, which ultimately contributes to improved profitability. This demonstrates that IC is not only an intangible asset but also a strategic instrument in strengthening Islamic banking performance.

Moreover, Adznan et al. (2023) highlighted that IC disclosure in Islamic banks' annual reports is influenced by the diversity of Sharia supervisory boards, which enhances transparency and accountability. Al-Rabiee & Naji (2025) also stressed that effective knowledge management through IC improves company performance, especially in addressing industry challenges. Hadi et al. (2024) showed that IC contributes to cost efficiency, while Qomariah & Nursaid (2025) confirmed the role of IC in strengthening financial performance through the mediation of cost efficiency and good governance. Therefore, IC functions as a vital pillar that not only supports profitability but also ensures the long-term sustainability and resilience of Islamic banks.

$H_5$: Intellectual Capital has a positive effect on the profitability of Islamic Commercial Banks in Indonesia.

$H_6$: Intellectual Capital moderates the relationship between the Profit Sharing Ratio (PSR) and the profitability of Islamic Commercial Banks in Indonesia.

$H_7$: Intellectual Capital moderates the relationship between the Zakat Performance Ratio (ZPR) and the profitability of Islamic Commercial Banks in Indonesia.

$H_8$: Intellectual Capital moderates the relationship between the Equitable Distribution Ratio (EDR) and the profitability of Islamic Commercial Banks in Indonesia.

$H_9$: Intellectual Capital moderates the relationship between the Islamic Income vs Non-Islamic Income Ratio and the profitability of Islamic Commercial Banks in Indonesia.

## Method

This study adopts a quantitative approach using static panel data to analyze the influence of the Islamic Performance Index (IPI) on Profitability (ROA) in Islamic Commercial Banks in Indonesia. The research population comprises all 14 Islamic Commercial Banks registered with the Financial Services Authority (OJK) from 2019 to 2024 (Ahsan & Qureshi, 2022; Hamsyi, 2019). The sampling technique used is purposive sampling, a method of selecting a sample based on specific criteria relevant to the research objectives (Prasojo et al., 2022; Setyawati et al., 2022). The sampling criteria are as follows: (1) the bank is officially registered with the OJK in 2024; (2) the bank has consistently operated as an Indonesian Islamic Commercial Bank from 2019 to 2024; (3) the bank has published its financial statements or annual reports on the official OJK website or its own website, and they are accessible for the 2019–2024 period; and (4) the bank provides complete financial data and ratios required for this study. Based on these criteria, a final sample of 10 Islamic Commercial Banks was selected using annual data.

The decision to use annual data is based on several considerations. First, annual financial statements provide the most comprehensive and audited source of information that reflects the overall performance of banks within one fiscal year, ensuring reliability and comparability across institutions. Second, annual data minimizes the short-term fluctuations that may occur in quarterly or monthly data, thereby providing a clearer picture of long-term performance and strategic implementation of Sharia principles. Third, most prior studies on Islamic banking performance and disclosure also rely on annual reports, making this approach consistent with existing literature and facilitating comparisons (Elgattani & Hussainey, 2021; Nugroho, 2022). Finally, the use of annual data aligns with the availability of Islamic Performance Index (IPI) indicators, such as zakat performance and income ratios, which are generally reported on an annual basis rather than quarterly. Thus, annual data not only ensures data completeness but also enhances the robustness of the analysis.

**Table 2.** Operational Definition of Variables

| Variable | Proxy/Formula | Operational Definition | Scale of Measurement |
|---|---|---|---|
| Profitability | ROA = (Net Income/Total Assets) × 100% | Profitability ratio measures the bank's ability to generate income from total assets. | Ratio (%) |
| Islamic Performance Index | — | Performance index of Islamic banks based on Sharia principles, measured through four main indicators. | — |
| Profit Sharing Ratio (PSR) | (Profit Sharing Revenue/Total Profit Sharing Financing) × 100% | Measures the extent to which Islamic banks apply the profit-sharing principle in financing. | Ratio (%) |
| Zakat Performance Ratio (ZPR) | (Distributed Zakat Funds/Total Net Income) × 100% | Measures the bank's performance in distributing zakat as a form of social responsibility. | Ratio (%) |
| Equitable Distribution Ratio (EDR) | (Income Distributed to Third Parties/Total Income) × 100% | Measures the level of equitable income distribution by the bank to third parties in line with maqashid sharia objectives. | Ratio (%) |
| Islamic Income vs Non-Islamic Income Ratio (IIcR) | (Net Islamic Income/Total Income) × 100% | Measures the proportion of income derived from Sharia-compliant activities compared to total income. | Ratio (%) |
| Intellectual Capital | IBVAIC (Islamic Banking Value Added Intellectual Capital) | An indicator of intellectual capital covering human, structural, and relational capital that creates added value in Islamic banks. | Index/Ratio |

The data analyzed focuses on specific financial ratios, with the dependent variable being Profitability, proxied by Return on Assets (ROA). The main independent variable is the Islamic Performance Index (IPI), measured through four indicators: Profit Sharing Ratio (PSR), Zakat Performance Ratio (ZPR), Equitable Distribution Ratio (EDR), and Islamic Income vs Non-Islamic Income Ratio (IIcR). Meanwhile, the moderating variable used is Intellectual Capital, proxied by the Islamic Banking Value Added Intellectual Capital (IBVAIC). The use of these financial ratio data is crucial for

understanding the operational performance and Sharia compliance of banks, as well as the contribution of intangible assets to profitability within the Indonesian context. Theoretically, a strong implementation of the IPI is expected to increase ROA by building customer trust and loyalty, while Intellectual Capital (IC), which includes human, structural, and relational capital, plays a crucial role in creating value and competitive advantage. Furthermore, IC also serves as a moderating variable that strengthens the relationship between IPI and ROA, where banks with higher Intellectual Capital will be more effective in implementing Sharia principles to maximize financial returns.

The econometric model that will be used in this study to test the effect of IPI, moderated by Intellectual Capital, on the profitability of Islamic commercial banks in the form of static panel data is as follows:

$$ROA_{it} = \beta_0 + \beta_1 PSR_{it} + \beta_2 ZPR_{it} + \beta_3 EDR_{it} + \beta_4 IIcR_{it} + \beta_5 IBVAIC_{it} + \beta_6 PSR_{it} * IBVAIC_{it} + \beta_7 ZPR_{it} * IBVAIC_{it} + \beta_8 EDR_{it} * IBVAIC_{it} + \beta_9 IIcR_{it} * IBVAIC_{it} + \varepsilon_{it} \quad (1)$$

Explanation:

$ROA_{it}$ : Return on Assets of bank *i* in period *t* (Profitability).
$PSR_{it}$ : Profit Sharing Ratio of bank *i* in period *t* (IPI Indicator).
$ZPR_{it}$ : Zakat Performance Ratio of bank *i* in period *t* (IPI Indicator).
$EDR_{it}$ : Equitable Distribution Ratio of bank *i* in period *t* (IPI Indicator).
$IIcR_{it}$ : Islamic Income vs Non-Islamic Income Ratio of bank *i* in period *t* (IPI Indicator).
$IBVAIC_{it}$ : Islamic Banking Value Added Intellectual Capital of bank *i* in period *t* (Intellectual Capital).
$(PSR_{it} \times IBVAIC_{it})$ : Interaction variable between PSR and IBVAIC
$(ZPR_{it} \times IBVAIC_{it})$ : Interaction variable between ZPR and IBVAIC
$(EDR_{it} \times IBVAIC_{it})$ : Interaction variable between EDR and IBVAIC
$(IIcR_{it} \times IBVAIC_{it})$ : Interaction variable between IIcR and IBVAIC
$\beta_0$ : Constant.
$\beta_1 - \beta_9)$ : Regression coefficients.
$\varepsilon_{it}$ : Error term for bank *i* in period *t*.

The process of testing the static panel data in this study will follow a series of systematic stages to ensure the validity and reliability of the results (Hadi et al., 2024; Setyawati et al., 2022). First, a descriptive statistical analysis will be conducted to provide a general overview of each variable's characteristics, such as minimum, maximum, mean, and standard deviation (Prasojo et al., 2022). Next, the Chow test and Hausman test will be performed to determine the most appropriate panel data estimation model, whether it be the Common Effect Model (CEM), Fixed Effect Model (FEM), or Random Effect Model (REM) (Isnaini & Nila Saadati, 2023; Zheng et al., 2024). The selection of the correct model is crucial because inter-bank heterogeneity can significantly affect the estimation results. Following this, classical assumption tests will be carried out, including multicollinearity, heteroscedasticity, and autocorrelation tests, to ensure that the model meets the statistical requirements for robust and unbiased inferences (Afandi & Haryono, 2022; Qomariah & Nursaid, 2025). If any assumptions are violated, appropriate correction methods, such as Generalized Least Squares (GLS) or Robust Standard Errors, will be applied. The final stage is hypothesis testing by estimating the econometric model to examine the influence of the independent and moderating variables on the dependent variable.

## Results and Discussion

This is the presentation of descriptive statistics, which provides a general overview of the research data's characteristics. This study involved Islamic Commercial Banks in Indonesia during a specific observation period. The descriptive statistics include the number of observations, mean, standard deviation, and the minimum and maximum values of each variable used in the analysis. This information is crucial for understanding the distribution and variability of the data before proceeding to more in-depth inferential analysis, especially in the context of the moderating role of Intellectual Capital (IBVAIC) on the relationship between the Islamic Performance Index (IPI) and Profitability (ROA).

**Table 3.** Descriptive statistical tests

| Variable | Obs. | Mean | Std. dev. | Min | Max |
|---|---|---|---|---|---|
| roa | 60 | 1.647 | 3.364 | -7.13 | 13.58 |
| psr | 60 | 87.069 | 2149.35 | .06 | 1663.09 |
| zpr | 60 | 0.012 | 0.022 | 0 | .12 |
| edr | 60 | 5.736 | 1.212 | -1848.87 | 5314.17 |
| ibvaic | 60 | -4495.91 | 5.465 | -40047.39 | 280.74 |
| iicr | 60 | 980.775 | 5.646 | 61.45 | 100 |
| psr_ ibvaic | 60 | -426297 | 954360. | -6699359 | 11414.89 |
| zpr_ ibvaic | 60 | -6.101.034 | 1.368.265 | -7.618.188 | 2.651 |
| edr_ ibvaic | 60 | -2994738 | 6553533 | -3.48e+07 | 1.13e+07 |
| iicr_ ibvaic | 60 | -447501.6 | 546325.6 | -4004739 | 24152.06 |

Source: processed data

The descriptive statistical analysis of 60 observations reveals diverse characteristics across the study variables. Return on Assets (ROA) has an average of 1.65 with a standard deviation of 3.36, ranging from -7.13 to 13.58, which indicates substantial variation in profitability among Islamic banks. The Profit Sharing Ratio (PSR) shows a mean of 87.07 and a very high standard deviation of 2149.35, with values between 0.06 and 1663.09, reflecting large disparities in profit-sharing practices. The Zakat Performance Ratio (ZPR) demonstrates a low average of 0.012 with little variation, ranging from 0 to 0.12, suggesting zakat distribution remains limited. The Equitable Distribution Ratio (EDR) has a mean of 5.74 but a very high standard deviation of 1212.21, with extreme values from -1848.87 to 5314.17, showing potential imbalances in income distribution. Intellectual Capital (IBVAIC) records a negative mean of -4495.91 with a wide spread from -40,047.39 to 280.74, indicating that most banks face challenges in intellectual capital management. Meanwhile, the Islamic Income vs Non-Islamic Income Ratio (IICR) averages 980.78 with a broad variation from 61.45 to 100, reflecting differences in reliance on Sharia-compliant income. Furthermore, interaction terms between Islamic performance indicators and IBVAIC display extreme ranges and very high standard deviations, such as psr_ibvaic ranging from -6693959 to 11414.89, zpr_ibvaic ranging widely, edr_ibvaic spanning from -34,800,000 to 11,300,000, and iicr_ibvaic also showing large variability.

These results indicate that intellectual capital, as a moderating factor, introduces substantial variability, potentially affecting the robustness of subsequent regression analyses. Overall, the descriptive results highlight significant heterogeneity across Islamic banks in profitability, Sharia performance, and intellectual capital, implying the need for robust analytical methods or data transformation in further analysis. The interpretation of variable relationships based on correlation analysis will be revised and clarified once Table 3 is finalized, ensuring consistency and alignment between descriptive results and correlation findings.

**Table 4.** Estimation results of CEM, FEM & REM

| | Common Effect | | Fixed Effect | | Random Effect | |
|---|---|---|---|---|---|---|
| Variable | Coeff | Prob | Coeff | Prob | Coeff | Prob |
| psr | -0.0716178 | 0.000 | -0.0357309 | 0.111 | -0.0716178 | 0.000 |
| zpr | -6.223.196 | 0.219 | -8.749.363 | 0.112 | -6.223.196 | 0.214 |
| edr | -0.0018562 | 0.018 | -0.0001754 | 0.866 | -0.0018562 | 0.015 |
| iicr | 0.0626462 | 0.319 | -0.0223459 | 0.651 | 0.0626462 | 0.314 |
| ibvaic | -0.0018934 | 0.689 | -0.0051971 | 0.271 | -0.0018934 | 0.687 |
| psr_ic | -0.0000178 | 0.000 | -8.79e-06 | 0.113 | -0.0000178 | 0.000 |
| zpr_ic | -0.0178833 | 0.045 | -0.0161725 | 0.057 | -0.0178833 | 0.040 |
| edr_ic | -3.89e-07 | 0.010 | -4.72e-08 | 0.808 | -3.89e-07 | 0.007 |
| iicr_ic | 0.0000358 | 0.453 | 0.000061 | 0.219 | 0.0000358 | 0.450 |
| _cons | 121.339 | 0.840 | 7.148.669 | 0.176 | 121.339 | 0.840 |
| R-squared | | 0.5610 | | 0.1488 | | 0.0824 |
| F-statistic | | 7.10 | | 0.80 | | 63.89 |
| Prob(F-stat) | | 0.0000 | | 0.6251 | | 0.0000 |

Source: processed data

After understanding the general data characteristics through descriptive statistical analysis, the next step in panel data analysis is to determine the most suitable estimation model. This process involves a series of formal tests to compare various models, such as the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The selection of the appropriate model is crucial, as it will significantly affect the validity and reliability of the regression estimation results. Therefore, Table 5 will present the results of the Chow Test, Hausman Test, and Lagrange Multiplier (LM) Test, which collectively serve as a guide in choosing the best model that is most suitable for the characteristics of this research data.

Based on Table 4, the estimation results presented in the Common Effect Model show that the R-squared value of 0.5610 indicates approximately 56.10% of the variation in the dependent variable can be explained by the independent variables included in the model, while the remaining 43.90% is influenced by other factors outside the model. The F-statistic with a significance level of 0.0000 confirms that the independent variables, when tested simultaneously, have a significant effect on the dependent variable. In terms of individual significance, the variables that show a significant influence are Profit Sharing Ratio, Equitable Distribution Ratio, the interaction between Profit Sharing Ratio and Intellectual Capital, the interaction between Zakat Performance Ratio and Intellectual Capital, and the interaction between Equitable Distribution Ratio and Intellectual Capital. Meanwhile, the variables that do not show significant effects are Zakat Performance Ratio, Islamic Income versus Non-Islamic Income Ratio, Intellectual Capital, and the interaction between Islamic Income versus Non-Islamic Income Ratio and Intellectual Capital. This highlights that not all components of Islamic performance and intellectual capital, either directly or when moderated, contribute equally to the model, as some have stronger explanatory power than others.

**Table 5.** Results of the Chow, Hausman & LM tests

| Model Selection Test | Statistic | Prob |
|---|---|---|
| Chow | 5.61 | 0.0000 |
| Hausman | 6.26 | 0.2818 |
| Lagrange Multiplier | 0.00 | 1.0000 |

Source: processed data

Based on Table 5, the results of the Chow, Hausman, and Lagrange Multiplier (LM) tests provide guidance on model selection. The Chow test shows a probability value of 0.0000, which is below the 0.05 threshold, indicating that the Pooled Least Squares (PLS) model is not appropriate, thereby favoring the Fixed Effect Model (FEM). The Hausman test then produces a probability value of 0.2818, which is greater than 0.05, suggesting that the Random Effect Model (REM) is more suitable than FEM. However, the LM test yields a probability value of 1.0000, which exceeds 0.05, implying that there is no significant difference between REM and PLS, and therefore PLS is preferred. Taking these results together, and in line with the final decision rule, the best model for this study is the Pooled Least Squares (PLS) model, as confirmed by the LM test results presented in Table 5.

Based on the estimation results in Table 4, the Profit Sharing Ratio (PSR) variable shows a significant and negative influence on the dependent variable. With a coefficient value of −0.0716178 and a very low probability value of 0.000, this finding indicates a statistically significant effect. The interpretation of this result is that every one-unit increase in PSR will cause a decrease in the dependent variable by 0.0716178. Theoretically, this result is contradictory because a high PSR should reflect good profit-sharing performance, which can logically increase profitability and attract customers (Isnaini & Nila Saadati, 2023). However, this negative result can occur because a high profit-sharing ratio can become a significant financial burden, which can ultimately suppress net profit and affect the bank's performance. Other factors, such as suboptimal risk management, can also cause a high profit-sharing ratio to not always be positively correlated with performance. Research by Hatta et al. (2024) also examines the relationship between PSR and financial performance, with findings varying depending on the context.

The analysis results show that the Zakat Performance Ratio (ZPR) variable does not have a significant influence on the dependent variable. Its coefficient value is −6.223196 with a probability of 0.219, which is above the 0.05 significance threshold. Theoretically, ZPR is a key measure of Islamic performance that demonstrates a bank's commitment to its social-religious responsibility (Hamsyi,

2019). Nevertheless, this finding does not mean that zakat is unimportant. Instead, it can be interpreted critically that the impact of zakat on financial performance may not be direct or linear. Zakat funds are expenditures for purifying wealth and providing social benefits, not investments that directly generate financial returns. Research by Lestari et al. (2025) also touches on the CSR aspect in the context of Islamic banks, which often does not show a direct relationship with profitability. The benefits of zakat may be more visible in non-financial forms, such as enhanced reputation, customer trust, and long-term sustainability.

The analysis of the Equitable Distribution Ratio (EDR) variable reveals a significant and negative influence on the dependent variable. The coefficient value is −0.0018562 with a probability of 0.018. This finding indicates that every increase in EDR will cause a decrease in the dependent variable. EDR measures how fairly the bank distributes wealth to its stakeholders (Nugroho, 2022). Theoretically, a bank's commitment to social justice should build a positive image and public trust, which in turn would increase profitability. However, this contradictory result invites critical analysis. Expenditures for social activities and equitable wealth distribution require a significant allocation of funds, which can reduce the funds available for more profitable investments. Therefore, this negative relationship may reflect the dilemma between social goals (justice) and financial goals (profitability) that Islamic financial institutions often face.

The Islamic Income versus Non-Islamic Income Ratio (IICR) variable does not show a significant influence on the dependent variable, with a coefficient value of 0.0626462 and a probability of 0.319. This result indicates that the proportion of income from Islamic versus non-Islamic sources does not have a significant influence on the bank's performance. Theoretically, a high IICR ratio indicates a bank's strict commitment to Sharia principles, which should attract customers who care about the religious aspect. However, this finding suggests that customers may be more focused on products and services than on the source of income. Additionally, non-Islamic income could come from permissible activities that are not fully aligned with Sharia principles, so they do not have a significant negative impact on performance. This analysis is consistent with research by Ahsan & Qureshi (2022) which shows that the influence of the Islamic banking model on a bank's performance is not always direct and can be affected by other factors.

The Intellectual Capital (IBVAIC) variable also does not show a significant influence on the dependent variable, with a coefficient value of −0.0018934 and a probability of 0.689. This finding is highly contradictory to the generally accepted theory. Various studies (Asutay & Ubaidillah, 2024; Hadi et al., 2024; Prasojo et al., 2022) consistently show that Intellectual Capital, which includes human, structural, and relational capital, is a vital asset that drives a company's performance and innovation. The failure of IBVAIC to show a significant influence in this model may be due to several reasons. First, the method used to measure Intellectual Capital might not fully capture the true value of the bank's intangible assets. Second, there might be a misalignment between investment in Intellectual Capital and the bank's business strategy, where intellectual capital is not effectively utilized to improve financial performance. This finding highlights the importance of not only acquiring Intellectual Capital but also managing it strategically.

The moderating analysis results show that the interaction between Profit Sharing Ratio and Intellectual Capital (psr_ibvaic) has a significant and negative influence, with a coefficient of −0.0000178 and a probability of 0.000. This finding indicates that Intellectual Capital strengthens the negative influence of the Profit Sharing Ratio on the dependent variable. This is an interesting result. Theoretically, Intellectual Capital should be a strategic asset that enhances a bank's performance. However, in this context, it appears that the bank's intellectual capabilities are unable to manage the risks associated with a high profit-sharing ratio. This critical analysis suggests a potential misalignment between the allocation of Intellectual Capital and strategic goals. For instance, if Intellectual Capital investments are primarily allocated to inefficient product development, it can worsen the negative impact of an already high Profit Sharing Ratio. This finding is supported by research from Afandi & Haryono (2022) and Mawutor et al. (2023) who discuss how Intellectual Capital can moderate the relationship between other variables and a bank's performance.

The interaction between the Zakat Performance Ratio (ZPR) and Intellectual Capital (IBVAIC) (zpr_ibvaic) shows a significant and negative influence, with a coefficient of −0.0178833 and a probability of 0.045. This result indicates that Intellectual Capital strengthens the negative effect of the Zakat Performance Ratio. This finding is highly contradictory to the theory that Intellectual Capital

can optimize all aspects of performance, including those related to zakat (Qomariah & Nursaid, 2025). The critical analysis shows that although the Zakat Performance Ratio itself is not significant, when it interacts with Intellectual Capital, the relationship becomes significant and negative. This could be due to a misalignment between the bank's intellectual capital and the social-religious goals measured by ZPR.

The interaction between the Equitable Distribution Ratio (EDR) and Intellectual Capital (IBVAIC) (edr_ibvaic) also shows a significant and negative influence, with a coefficient value of $-3.89\times10^{-7}$ and a probability of 0.010. This finding means that Intellectual Capital strengthens the negative effect of the Equitable Distribution Ratio. Theoretically, Intellectual Capital should help a bank manage and optimize all its ratios to improve performance. However, this result shows the opposite. A critical analysis concludes that this finding may be caused by a lack of efficiency in the bank's intellectual capital management. If the funds and intellectual resources allocated for wealth distribution activities are not managed well, they will not only fail to add value but can even become a burden that exacerbates the negative impact of the ratio itself. This finding is in line with research by Buallay et al. (2021) which discusses the relationship between intellectual capital and employee productivity, where efficiency is key.

The interaction between the Islamic Income versus Non-Islamic Income Ratio (IICR) and Intellectual Capital (IBVAIC) (iicr_ibvaic) does not show a significant influence, with a coefficient value of 0.0000358 and a probability of 0.453. This finding indicates that Intellectual Capital does not significantly moderate the relationship between the IICR ratio and the dependent variable. Theoretically, Intellectual Capital should be able to help banks identify and optimize Sharia-compliant income sources. However, the absence of a significant moderating influence in this case leads to several critical questions. The first possibility is that investments in Intellectual Capital are not directed toward optimizing Sharia-compliant income sources. The second possibility is that the Intellectual Capital measured in this study is not relevant enough to the bank's income diversification strategy. This shows that even though a bank has intangible assets, their use may not be aligned with the strategic goal of improving performance through the optimization of Sharia-compliant income. This finding is generally supported by research by Adznan et al. (2023) which discusses how intellectual capital can interact with Sharia governance.

## Conclusions

Based on the analysis results, this study concludes that several Sharia performance ratios, especially the Profit Sharing Ratio (PSR) and Equitable Distribution Ratio (EDR), have a significant negative influence on the dependent variable. This finding highlights a real conflict between the financial and socio-religious goals in Islamic banking operations. Furthermore, although Intellectual Capital (IBVAIC) has no direct influence, its role as a moderating variable actually strengthens the negative influence of some Sharia performance ratios. This indicates that the Intellectual Capital held by the bank has not been effectively managed to create synergy between social and financial goals.

The implications of this study are clear. The results show that Islamic banks need to re-evaluate their strategies to ensure that investments in socio-religious goals do not compromise financial performance. Practically, banks must use Intellectual Capital more strategically. It is not merely an asset, but an important tool for designing products and services that can generate financial profits while also enhancing social and religious value. Banks are advised to invest in intellectual resources that can optimize operational efficiency and risk management related to profit sharing and wealth distribution.

This study has several limitations that can serve as a guide for future research. First, the measurement of Intellectual Capital in this study may not fully capture the true value of the bank's intangible assets. Second, this analysis does not include qualitative factors, such as customer perceptions or organizational culture, which might explain the contradictory findings. Therefore, it is suggested that future research use different methodologies, such as a qualitative approach or a more comprehensive Intellectual Capital measurement method. Further research is needed to identify how intangible resources can truly become a driving force for the dual performance (financial and social) of Islamic banks.

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