COMPARATIVE EFFECTS OF PROFITABILITY AND RISK MANAGEMENT ON FINANCIAL STABILITY IN A DUAL BANKING SYSTEM: DOES YIELD MATTER?

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ABSTRACT

This study aims to examine the impact of risk management and profitability on the stability of conventional and Islamic commercial banks in Indonesia and to assess whether yield can moderate this effect. The research analyzes data from Indonesian Sharia and conventional commercial banks from 2016 to 2023 using fixed-effects panel data regression with robust standard errors. The findings reveal that Sharia banks exhibit greater risk resilience than conventional banks, demonstrating a lower probability of instability. Additionally, yield enhances the effect of non-performing financing (NPF) on bank stability in Sharia banks and mitigates the impact of non-performing loans (NPL) in conventional banks. These results offer valuable insights for policymakers and contribute to the literature by highlighting the need for a balanced approach to ensure that bank profitability enhances stability rather than undermines it. It underscores that higher profits are not inherently beneficial, nor are lower profits necessarily detrimental. Banks must strike a balance, maintain public trust, and promote prudent risk management to achieve long-term stability.

Keywords: Risk Management, Profitability, Stability, Dual Banking System

ABSTRAK

Studi ini bertujuan untuk mengkaji dampak manajemen risiko dan profitabilitas terhadap stabilitas bank umum konvensional dan bank umum syariah di Indonesia serta menilai apakah yield dapat memoderasi dampak tersebut. Menggunakan regresi data panel dengan efek tetap dan standar error yang robust, penelitian ini menganalisis data dari bank umum syariah dan bank umum konvensional di Indonesia yang mencakup periode 2016 hingga 2023. Temuan penelitian ini mengungkapkan bahwa bank syariah menunjukkan ketahanan yang lebih tinggi terhadap risiko dibandingkan dengan bank konvensional, dengan bank syariah menunjukkan probabilitas ketidakstabilan yang lebih rendah. Selain itu, yield memperkuat pengaruh pembiayaan bermasalah (NPF) terhadap stabilitas bank di bank syariah dan mengurangi dampak kredit bermasalah (NPL) di bank konvensional. Hasil penelitian ini memberikan wawasan berharga bagi pembuat kebijakan dan berkontribusi pada literatur dengan menekankan perlunya pendekatan yang seimbang untuk memastikan bahwa profitabilitas bank meningkatkan stabilitas dan tidak sebaliknya. Ini menegaskan bahwa keuntungan yang lebih tinggi tidak selalu bermanfaat, dan keuntungan yang lebih rendah tidak selalu merugikan. Bank harus mencapai keseimbangan, menjaga kepercayaan publik, dan mendorong manajemen risiko yang bijaksana untuk mencapai stabilitas jangka panjang.

Kata Kunci: Manajemen Risiko, Profitabilitas, Stabilitas, Dual Bank System

JEL: G21; G32

Introduction

Financial authorities must oversee a market where Islamic and conventional banks coexist harmoniously in a dual banking system. Consequently, in implementing monetary policy, institutions like the central bank must ensure that the policy is advantageous for both types of banks (Mateev et al., 2022). The stability of the banking system has significant benefits, which are not only for the integrity of financial markets but also for economic growth and the overall welfare of society. Bank stability affects its ability to provide credit, facilitate investment, and ensure efficient capital allocation (Dangnga & Haeruddin, 2018). Disruptions to banking stability can lead to significant economic repercussions, affecting businesses, individuals, and governments. Consequently, it is crucial to understand the factors determining banking stability to mitigate risks and support sustainable economic development (Syafitri & Batubara, 2023).

Several factors can affect the level of financial stability of banks, namely risk management, which consists of credit risk and liquidity risk (Putri & Syafruddin, 2023). It can occur if the customer cannot repay the loan. Meanwhile, in measuring a bank's liquidity in repaying withdrawals made by depositors, it relies on financing provided as a source of liquidity (Hapsari & Widarjono, 2023). If banks have ratios that are not by the provisions of the regulator, in this case, the OJK (Financial Services Authority), it will affect the financial stability of banks. Islamic banking offers similar products to conventional banks, and compliance with Sharia (prohibition of interest-based transactions, excessive uncertainty, and gambling, among other requirements) significantly affects their business model (Maulana et al., 2023). Recently, Bangladeshi banking. They found that credit expansion in pursuit of profitability increases credit risk and threatens banking stability in the long run (Thornton & Di Tommaso, 2021).

Competition stability theory emphasizes banking stability due to increased interbank competition (Nosheen & Rashid, 2021). This theory has two points of view between competition and banking stability. Bank competition will reduce bank interest income, which will then cause bank profits to decline. Furthermore, there will be an increase in the probability of default or bankruptcy, disrupting the financial system. On the contrary, other opinions argue that, in theory, market competition is positively correlated with bank competition (Khan & Hussain, 2020). The reduction in interest rates, driven by heightened competition among banks, indicates that insufficient competition would lead to higher interest rates. It, in turn, could lead to an increase in the bank's non-performing loan ratio, potentially causing financial issues (Putri & Syafruddin, 2023).

Conventional banks face agency problems with depositors and borrowers. This issue may be less pronounced in Islamic banks for two reasons. First, the equity-based funding models (mudarabah and musharakah), in contrast to the debt-based funding models (murabahah and ijarah), enhance depositors' incentives to oversee and discipline bank management. Second, the shariah supervisory board of each institution plays a significant supervisory role (Khomsatun et al., 2020). Ensuring compliance with religious requirements in every operational activity can avoid excessive risk-taking or the provision of unqualified credit (Paltrinieri et al., 2021; Thornton & Di Tommaso, 2021).

The pecking order theory, initially proposed by Myers (1984), illustrates the relationship between idiosyncratic financial risk and financial stability. According to this theory, companies follow a structured hierarchy in financing their activities, preferring internal funds over external financing options. It suggests that firms will only resort to idiosyncratic financial risks

after exhausting internal financing and other external funding sources (Ghenimi et al., 2017). The risk-return trade-off theory posits that excessive profitability can jeopardize stability by increasing the risk of future bad debts. Banking regulators need to ensure that banks attain profitability through efficient market mechanisms and fair competition rather than by engaging in excessive risk-taking. It stabilizes the banking system.

The current body of research on the relationship between profitability, risk management, and bank stability presents mixed findings. Some prior studies offer supporting evidence, indicating that increased market power is associated with reducing bank risk (Nguyen et al., 2012). Research on dual bank systems in MENA countries shows that Islamic banks have more stability in the face of crisis than conventional banks (Acharya & Naqvi, 2012). Islamic banks have a higher profitability of up to 18% than conventional banks during the coronavirus crisis (Hamza, 2018). They argue, however, that poor supervision of the management of the institute by making concessions to customers with high-risk levels resulted in the bursting of price bubbles, disrupting the stability level of the bank (Paltrinieri et al., 2021) and causing a new crisis in banking institutions. Gaining the scope of economic profitability encourages market competition (Ketaren & Haryanto, 2020). They are minimizing the cost of monitoring or screening banks for borrowers (Trinh et al., 2020).

The inconsistency of research results Ahmad et al., (2022); Abuzayed et al., (2018); Ben Salah Mahdi & Boujelbene Abbes, (2018); Paltrinieri et al. (2021) shows that the financial stability of Islamic banking in the study still needs further research by adding other factors that influence it, namely yield. Regarding the relationship between yields and bank financial stability, yields can support banking resilience because the value of assets owned by banks is relatively maintained amid uncertainty. However, high yields can threaten banks' financial stability and Profitability (Rifai, 2020). Therefore, banks must monitor and manage yields properly to ensure financial stability and profitability. This study aims to examine the role of yield in moderating the effect of credit risk (NPF), liquidity risk (FDR), and profitability on the financial stability of the dual banking system (Drucker & Puri, 2009). The dependent variable in this study is financial stability, measured by the Z-Score. Our research distinguishes itself from previous studies by exploring the effect of yield on the risk-adjusted Profitability and stability of Islamic and, more specifically, conventional commercial banks in Indonesia. We investigate this relationship using a range of firm profitability and risk measures.

We contribute to the existing literature by incorporating our findings into several previous studies on risk management, profitability, returns, and bank stability in Indonesia. Our research builds on prior findings by examining a larger sample of banking institutions, utilizing a more recent timeframe, and ensuring high data quality. It is the first study to explore this relationship using consistent accounting measures to assess the impact of profitability and risk on stability moderated by returns. This study also controls for variables such as inflation and interest rates to ensure the results align with the formulated hypotheses.

Literature Review

Agency Theory

Agency theory explains the practice of conflicts of interest between the three parties consisting of directors, shareholders, and debt holders that cannot be avoided (Chakravarty & Rutherford, 2017). In particular, shareholders in a highly leveraged institution or bank often have a solid incentive to expropriate wealth from debt holders through risky project investments (Trinh et al., 2020). Debt holders can expect certain motivations, necessitating a higher risk premium on their investments, thereby increasing the cost of borrowing. A

key resolution to these conflicts is establishing a proficient board of directors to oversee bank operations and investments in the interest of debt holders.

Pecking Order Theory

Pecking order theory, according to Myers (1984), states that companies prefer internal capital for external financing. The capital must first come from the corporation's operating results in net profit after tax, which is not distributed to company owners. Companies prefer to use retained earnings before seeking external financing, whether debt or equity. According to Wikartika (2017), corporations prioritize issuing debt instruments like bonds over equity when they exhaust their internal funding sources and require external financing. The rationale behind this preference is that bonds are perceived as a relatively safer option than issuing new shares. Debt financing does not dilute the existing shareholders' ownership stake. However, more than the capital raised through bonds is required to meet the firm's financial requirements. In that case, the next step in the pecking order is to resort to equity financing by offering new shares to investors. While providing additional funds, this alternative has the potential drawback of diluting current shareholders' ownership interests. The theory is internal funding, debt, and equity (Ismail & Ahmed, 2023). The relationship between this theory and risk is that a high level of risk increases the likelihood of overcoming financial difficulties. The lower the risk, the better the financial condition or it can be said that financial stability is improving.

Risk-Return Trade-Off Theory

Risk-return trade-off theory in financial management and banking explains the relationship between risk and expected return. According to Santomero (1997), banks need to implement risk management, including limiting risk exposure, to achieve an optimal level of return with limited risk so that stability is maintained. Wijaya (2021) argues that banks must implement risk management, including limiting risk exposure to specific debtors, to achieve the optimal balance of return and risk for banking profitability and stability.

Financial Stability

Financial system stability denotes a condition in which economic mechanisms operate efficiently to establish prices, allocate capital, and mitigate risks, thereby fostering economic expansion. A stable financial system shields against adverse shocks and stabilizes and fortifies the broader financial framework (Mateev et al., 2022).

Bank Indonesia is the monetary authority. The financial system is deemed stable when it facilitates effective and efficient functioning of the national financial infrastructure, enabling targeted allocation of funds and financing and safeguarding the economy against internal and external influences. This stability fosters economic growth and enhances overall economic resilience (Abuzayed et al., 2018)—financial stability as measured by Z-Score. A higher Z-Score indicates strong stability and low bankruptcy rates (Hapsari & Widarjono, 2023). The Z-score is an elegant method to determine an institution's vulnerable periods and compare a bank's financial stability to other banks. We adopted the measurement of the Z-score using Altman's method, which is related to Badea & Matei (2016) and Moreno et al. (2022).

Differences between Islamic and Conventional Banks

Banks play a crucial role as financial intermediaries, bridging those with surplus funds and those needing financing (Bossone, 2001). They accumulate deposits from the

public and channel these funds back into the economy through various lending and financing activities. The Indonesian banking system has two distinct operational models: conventional and Islamic banks. Islamic banks, as the name suggests, conduct their business activities by the principles of Islamic Sharia, as outlined in the fatwas (rulings) issued by the Indonesian Ulama Council. This adherence to Sharia principles sets Islamic banks apart from their conventional counterparts (Rizvi et al., 2020). Conversely, conventional banks operate under the conventional banking framework, providing banking services based on the regulations set forth by Indonesia's Banking Law and Financial Services Authority (OJK).

One of the key distinctions between Islamic and conventional banks lies in their approach to financial transactions. Islamic banks emphasize the concept of partnership and fairness, avoiding interest-based (riba) transactions. Instead, they employ profit-and-loss sharing mechanisms, such as *mudarabah* and *musharakah*, as well as trade-based contracts like *murabahah* and *ijarah* (Djuitaningsih, 2020). This ethical and socially responsible approach to banking has garnered increasing attention and popularity among Muslim and non-Muslim communities worldwide.

Risk Management

There is often an agency conflict problem between depositors and borrowers in conventional banks. Credit risk may arise from loans provided by banks to their customers, where loans can affect the bank's operations. The bank bears credit risk if the customer fails to pay the debt or credit received on the due date. Credit risk can be measured using Non-Performing Financing (NPF) in Islamic commercial banking while in conventional commercial banking, it is measured through Non-Performing Loan (NPL) (Ghenimi et al., 2017).

The development of credit risk ratios in banks in Indonesia is an important thing to monitor because this ratio is one indicator of the financial health of banks. If the credit flow ratio increases, the bank needs to take action to reduce its credit risk (Hapsari & Widarjono, 2023). The higher the NPF/NPL ratio, the higher the unpaid financing. As a result, the high NPF / NPL disrupts the bank's financial stability due to high financing risk. Research conducted by Siregar & Harahap (2023) and Nugroho & Anisa (2018) shows that NPF negatively influences bank stability. The higher the NPF / NPL value of a bank, the decrease in profits will be, which can disrupt the bank's financial stability. However, research (Kabir et al., 2015) found a significant favorable influence between Islamic banks and financial stability compared to conventional banks. So, a hypothesis can be formulated as follows:

H$_1$: NPF/NPL negatively affects financial stability in conventional and syariah

Islamic Banking

Liquidity risk is the possibility of a bank's failure to fulfill its financial obligations on the due date. Skoglund and Chen (2015) mentioned that the risk caused by market or bank-specific events is known as liquidity risk, A measurement using FDR (*Financing Deposit Ratio*) in Islamic banks. While in conventional banks, it can be measured through LDR (*Loan Deposit Ratio*). This ratio aims to ensure that the bank has the necessary resources to fulfill its obligations to investors who have invested their money using the financing provided by the debtor. Liquidity is higher when the ratio is higher, so the increase in the ratio will be more stable banking finances (Paltrinieri et al., 2021; Agustina et.al, 2023).

Amara and Mabroaki's research (2019) results explain that liquidity risk significantly impacts banking stability. Furthermore, research by Paltrinieri et al. (2021) stated that liquidity risk (FDR) positively affects financial stability rather than LDR in conventional banks. So, the following hypothesis is formed:

H2: FDR/LDR Positively affects financial stability in conventional and islamic banking.

Profitability

In the Risk-Return Trade-Off Theory, excessive profitability achieved by taking high risks will jeopardize banking stability in the long run. Profit generation in Islamic banks arises from their business model that operates without interest, in contrast to the credit-dependent model of conventional banks (Sutrisno, 2023). The principle of risk sharing and asset support characterizes the type of assets of Islamic banks (Hamza, 2018). In Islamic banking, intermediation primarily utilizes two Islamic financing mechanisms. The first involves sales and leasing arrangements, specifically through murabahah and ijarah contracts, which are fundamental methods based on a predetermined markup. The second mechanism revolves around profit and loss sharing, facilitated by musyarakah and mudharabah contracts, which anticipate profits based on the collaborative nature of the enterprise. Due to the inherent structure of Islamic banking, maximizing profitability stands as the principal goal for both shareholders and investment depositors.

Given the implications that distinguish Islamic banks from conventional banks, the hope is that the bank will provide benefits for capital owners and depositors to provide financial stability to the bank. So, thus the hypothesis that we build is as follows:

H3: profitability positively affects financial stability in conventional and islamic banking.

Yield

Profit sharing is a system of sharing profits and losses from cooperation between capital owners and managers in running a business. The profit-sharing system guarantees justice, and no party is exploited. Furthermore, the provision of returns made by banks will attract customers to save their funds in deposits, current accounts, or other ways. This certainty can increase profitability and reduce risk (Katz, 2023). The return size is determined by business profits and based on mutual agreement. If there is a loss, the bank and the customer are responsible for the agreed regulations (Ghenimi et al., 2017).

However, despite the similarity in deposit return rates, Islamic banks do more than distribute interest to customers as conventional banks do. Lee et al. (2020) analyzed monthly average deposit rates from 2000 to 2017, examining the relationships among real interest rates, deposit rates, inflation, and risk premium rates. Their findings indicated no significant effect between real interest and deposit rates for Islamic and conventional banks. Similarly, Al-Harbi (2017) affirmed in his study that interest rates do not determine the rate of return in Islamic banking. Consequently, it is concluded that Islamic banks experience different impacts than conventional banks, demonstrating greater resilience to risk but lower profitability. This aspect was further explored in a dual banking system research study (Ertürk & Yüksel, 2013). Thus, the hypothesis we build is as follows:

H4: Yield can moderate the effect of NPF / NPL on financial stability in conventional and islamic banking.

H5: Yield can moderate the effect of FDR / LDR on financial stability in conventional and islamic banking.

H6: Yield can moderate the effect of profitability on financial stability in conventional and islamic banking.

Methodology

Data and Research Methods

The research employs an explanatory quantitative approach, utilizing monthly time series data from January 2016 to June 2023 sourced from Sharia Banking Statistics, Indonesian Banking Statistics, and Bank Indonesia. Data collection involved documentation techniques, with researchers gathering direct reporting data from relevant websites throughout 2016-2023.

Table 1: Operational Definition of Variables

Variable	Measurement		Banking System	Reference
Dependent Variable				
Financial Stability (Y)	$Z - Score = \dfrac{ROA + CAR}{\sigma ROA}$		Conventional	Badea & Matei (2016) and Moreno et al. (2022)
			Sharia	
Independent Variable				
Profitability (X1)	$ROA = \dfrac{Net\ Profit}{Total\ Assets} \times 100\%$		Conventional	Hamza (2018) and Sutrisno (2023)
			Sharia	
Risk Management (X2)	NPL	$NPL = \dfrac{Non - Perfor\min g\ Loans}{Total\ Loans} \times 100$	Conventional	Ghenimi et al., (2017)
	LDR	$LDR = \dfrac{Total\ Loan}{Third\ Party\ Funds} \times 100$		
	NPF	$NPF = \dfrac{Non - Perfor\min g\ Financing}{Total\ Financing} \times 100$	Sharia	Yurida & Harahap (2023)
	FDR	$FDR = \dfrac{Total\ Financing}{Third\ Party\ Funds} \times 100$		
Interaction Variable				
Yield (Z)	$Net\ Interest = Interest\ Income - Interest\ Expense$		Conventional	Ertürk & Yüksel (2013)
	$Yield\ Proportion = \dfrac{Non - Core\ Deposit}{Total\ TPF}$		Sharia	

Empirical Model

The methodology in this research consists of two main steps. First, we use a multiple linear regression model, and the classical assumption steps taken start from the normality, heteroscedasticity, multicollinearity, and autocorrelation tests. After the data passes the classical assumptions, hypothesis testing includes the F, t-test, and coefficient of determination tests. The model was developed by first selecting variables representing key risk and profitability measures (NPF, NPL, LDR, FDR), followed by running a fixed-effects panel regression to account for variations across banks over the 2016-2023 period while ensuring robustness through the use of robust standard errors to mitigate heteroscedasticity. Second, we used Moderated Regression Analysis (MRA) to test whether the moderating variable strengthens or weakens the relationship between the independent and dependent variables. E-Views 10 software is used for data processing in this research. Then, to test our hypothesis,

we adopt the equations as follows:

The first is about the Multiple Linear Regression model which can be expressed in the equation below. In two equations, there are conventional and Sharia:

$$Z - Score_{Conven} = \beta_0 + \beta_1 NPL + \beta_2 LDR_t + \beta_3 ROA_t + \varepsilon_t \tag{1}$$

$$Z - Score_{Syariah} = \beta_0 + \beta_1 NPF_t + \beta_2 FDR_t + \beta_3 ROA_t + \varepsilon_t \tag{2}$$

After that, we used *the* Moderated Regression Analysis (MRA) model to examine the interaction between independent variables and the dependent variable included in the model. That can be expressed in the form of the equation below:

$$Z - Score_{Conven} = \beta_0 + \beta_1 NPL_t + \beta_2 LDR_t + \beta_3 ROA_t + \beta_4 NI * NPL_t + \beta_5 NI * LDR_t + \beta_6 NI * ROA_t + \varepsilon_t \tag{3}$$

$$Z - Score_{Syariah} = \beta_0 + \beta_1 NPF_t + \beta_2 FDR_t + \beta_3 ROA_t + \beta_4 YP * NPF_t + \beta_5 YP * FDR_t + \beta_6 YP * ROA_t + \varepsilon_t \tag{4}$$

Description:

Z-Score : financial stability of banks

β_0 : constant

$\beta_1 - \beta_6$: regression coefficient

Non-Performing Loan (NPL) : credit risk of conventional banks

Non-Performing Financing (NPF) : credit risk of Islamic banks.

Loan to Deposit Ratio (LDR) : risk on liquidity of conventional banks

Financing to Deposit Ratio (FDR) : liquidity risk of Islamic banks

Ratio On Asset (ROA) : profitability ratio

Net Interest (NI) : interest Income

Yield Proportion (YP) : yield proportion

ε : *error*

Finding and Discussion

This study's sample comprises 132 conventional banks, and 15 Islamic banks registered with the Financial Services Authority in 2023. As outlined in Chapter 3, the sample selection process identified 45 conventional commercial banks and 13 Islamic commercial banks eligible for inclusion.

Descriptive Statistics

Table 2: Results of Descriptive Statistical Analysis of Conventional Banks

	Z-Score	NPL	LDR	ROA	INTEREST
Mean	91.71022	5.176390	86.59756	2.339444	4.892444
Median	90.73000	5.159535	89.18500	2.445000	4.895000
Maximum	103.9600	5.272702	96.19000	3.020000	5.650000
Minimum	85.45000	5.036811	72.39000	1.590000	4.140000

Based on Table 2, the dependent variable is bank stability interpreted in Z-Score, which has a minimum value of 85.45000. This means that the lowest Z-Score value is 85.4%, which occurred in February 2016. Meanwhile, the maximum value of the Z-Score is 103.9600, which means that the highest NPL value in conventional commercial banks is 103.9%, which occurred in June 2023.

Credit risk interpreted in non-performing loans (NPL) has a minimum value of 5.1595, which means that the lowest NPL value is 5.15%. Meanwhile, the maximum value of NPL is 5.2727, which means that the highest NPL value in conventional commercial banks is 5.227%. Furthermore, the conventional bank liquidity variable interpreted as a loan-to-deposit ratio (LDR) at conventional commercial banks has a minimum value of 72,390, meaning the lowest LDR value is 72.3%. The maximum value of LDR is 96,190, which means that the highest LDR value in conventional commercial banks is 96.1%. The conventional bank profitability variable interpreted by return on assets (ROA) at conventional commercial banks has a minimum value of 1.590000, which means that the lowest ROA value is 1.5%, which occurred in December 2020. The maximum value of ROA is 3.020000, which means that the highest ROA value in conventional commercial banks is 3.02%, which occurred in January 2023.

The moderation variable in this study is interpreted by net interest (NI) at conventional commercial banks, which has a minimum value of 4.1400. It means that the lowest NI value was 4.14% in February 2021. Meanwhile, the maximum value of NI is 5.6500, which means that the highest NI value in conventional commercial banks was 5.65%, which occurred in September and October 2016.

Table 3: Results of Descriptive Statistical Analysis of Islamic Banks

	Z-Score	NPF	FDR	ROA	YIELD
Mean	43.16969	3.772556	79.32456	1.442444	48.88078
Median	43.48785	3.435000	78.94000	1.450000	48.85000
Maximum	55.81286	6.170000	89.32000	2.180000	54.27000
Minimum	29.48949	2.350000	68.98000	1.160000	43.17000
Observations	90	90	90	90	90

Based on Table 3, the dependent variable is bank stability interpreted in Z-Score, which has a minimum value of 29.48949, which means the lowest Z-Score value is 29.4% and occurred in February 2016. Meanwhile, the maximum value of Z-Score is 55.81286, which means that the highest stability value in Islamic Commercial Banks is 55.8% and occurred in June 2023. Non-performing financing, interpreted as Non-Performing Financing (NPF), has a minimum value of 2.3500, which means the lowest NPF value is 2.3%. The lowest NPF value is in March 2023. Meanwhile, the maximum value of NPF is 6.1700, which means that the highest NPF value in Islamic commercial banks is 6.1% and occurred in July 2017. Islamic bank liquidity risk, interpreted as Financing to Deposit Ratio (FDR), has a minimum value of 68.980 and a maximum of 89.32000. The lowest FDR value was in January 2022, while the maximum value of FDR 2016 was in August. Islamic bank profitability variables interpreted by return on assets (ROA) at islamic commercial banks have a minimum value of 3.020, which means the lowest ROA value is 3.2%. The maximum ROA value is 1.5900, which means that the highest ROA value in islamic commercial banks is 1.59%. Islamic banks do not recognize interest income, but the term yield financing, interpreted as yield at islamic commercial banks, has a minimum value of 43,170, meaning the lowest yield value is 43.17%. The maximum yield value is 54,270, which means the highest yield value in Islamic commercial banks is 54.27%.

Classical Assumption Test

Normality Test

The normality test determines whether the regression model's residual variables are normally distributed. A residual variable is said to be normally distributed if the Jarque-Bera probability value is> 0.05. The following are the results of normality testing on Islamic commercial banks and conventional commercial banks.
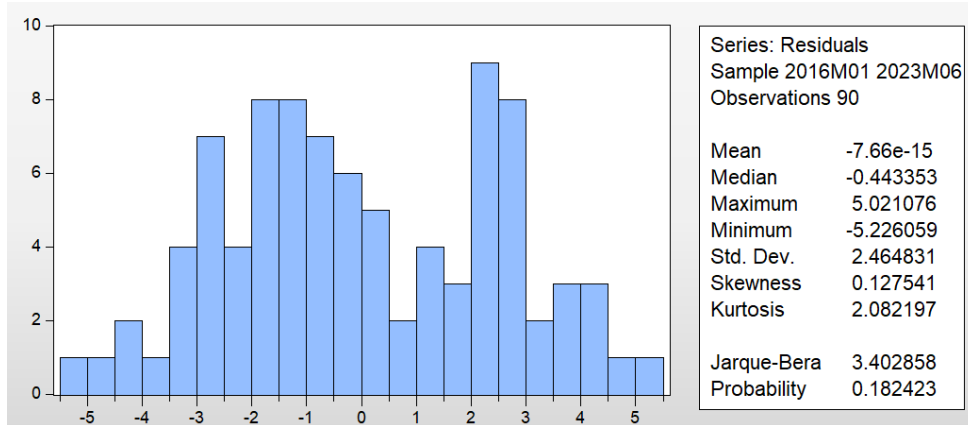
Figure 1: Normality Test Results for Islamic Banks
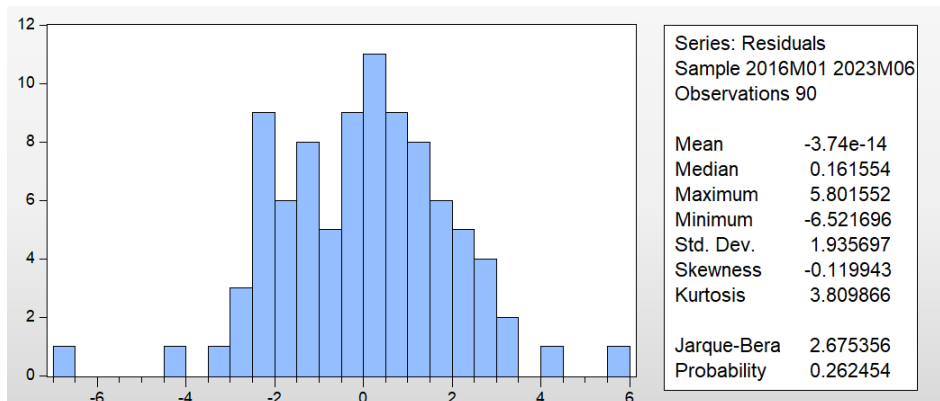
Figure 2: Normality Test Results for Conventional Banks

Multicollinearity Test

The multicollinearity test is a fundamental assumption check employed in research models to assess correlations among independent variables. A common method to conduct this test involves examining the Variance Inflation Factor (VIF). A VIF value below 10.00 indicates the absence of multicollinearity issues among the independent variables. The following are the results of the multicollinearity test on Islamic and conventional commercial banks.

Table 4: Results of Multicollinearity Test for Islamic Commercial Banks

Variable	Coefficient	Uncentered	Centered
	Variance	VIF	VIF
NPF	0.456603	99.23286	6.210650
FDR	0.009701	876.6779	2.916513
ROA	1.623085	54.24589	5.904830
C	72.03931	1031.208	NA

Table 5: Results of Multicollinearity Test for Conventional Commercial Banks

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
NPL	29.97871	18646.76	2.602960
LDR	0.002436	426.5080	2.551582
ROA	0.730617	94.15629	1.347091
C	1018.394	23636.98	NA

Based on Table 4 of the multicollinearity test results on the sample of Islamic banks above, the VIF value is less than 10.00. Thus, there is no multicollinearity between the independent variables. Similarly, based on Table 5 of the multicollinearity test results on the conventional bank sample above, the VIF value is less than 10.00.

Heteroscedasticity Test

The heteroscedasticity test examines whether there is unequal variance among residuals across observations in a regression model. A significance level of 0.05 is typically used, where a probability (p-value) greater than 0.05 suggests no heteroscedasticity issue. The results of this test for Islamic commercial banks and conventional commercial banks are presented below.

Table 6: Heteroscedasticity Test Results Islamic Bank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NPF	-0.090838	0.343152	-0.264718	0.7919
FDR	-0.100198	0.050017	-2.003284	0.0483
ROA	-0.154984	0.646975	-0.239551	0.8112
C	10.41763	4.310244	2.416947	0.0178

The results of the heteroscedasticity test using the Glejser method show that the regression results between the absolute value of the residuals and all independent variables are insignificant, namely the prob value. All independent variables are more than the significance level (0.05). Thus, the model in this study does not exhibit heteroscedasticity, so it passes the heteroscedasticity test.

Table 7: Heteroscedasticity Test Results for Conventional Commercial Banks

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NPL	6.203655	3.289664	1.885802	0.0627
LDR	0.045358	0.029653	1.529649	0.1298
ROA	0.524898	0.513558	1.022080	0.3096
C	-35.75189	19.17357	-1.864644	0.0656

The results of the heteroscedasticity test using the Glejser method show that the regression results between the absolute value of the residuals and all independent variables are insignificant, namely the prob value. All independent variables are more than the significance level (0.05). Thus, the model in this study does not exhibit heteroscedasticity, so it passes the heteroscedasticity test.

Autocorrelation Test

The autocorrelation test, a fundamental assumption test, assesses whether a correlation exists between the residuals of one observation and those of others at varying time points. It examines the Prob. Chi-Square to determine the presence of autocorrelation in research

data. A Prob. Chi-Square value > 0.05 indicates no autocorrelation issue. The outcomes of the autocorrelation test on Islamic and conventional commercial banks are presented below.

Table 8: Results of Autocorrelation Test for Islamic Commercial Banks

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	51.02421	Prob. F (2,84)	0.0000
Obs*R-squared	49.36542	Prob. Chi-Square (2)	0.0000

Table 9: Autocorrelation Test Results for Conventional Commercial Banks

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	28.45949	Prob. F (2,84)	0.0000
Obs*R-squared	36.35215	Prob. Chi-Square (2)	0.0000

Based on table 8 shows the value of Prob. The chi-square value is less than the significance level of 0.05. For this reason, this research data indicates an autocorrelation problem. Based on table 9 shows the value of Prob. The chi-square value is less than the significance level of 0.05. For this reason, this research data indicates an autocorrelation problem.

Multiple Linear Regression

Table 10: Results of Multiple Linear Regression of Islamic Commercial Banks

Variable	Coefficient	Std. Error	z-Statistic	Prob.
NPF	-1.970808	0.718857	-2.741585	0.0061
FDR	-0.428271	0.104779	-4.087377	0.0000
ROA	7.112832	1.355326	5.248058	0.0000
C	74.29675	9.029383	8.228332	0.0000

The results of the t-statistical test are in Table 10, starting with the robustness test as proof of a robust, valid, and unbiased research model (Sepriani & Candy, 2022). Robustness tests *are* also carried out to pass the classical assumption test; in other words, it can be stated that this test is a cure for heteroscedasticity and autocorrelation symptoms. The results show that NPF (X1) significantly negatively affects Islamic commercial banks' financial stability. It is evidenced by the probability value of 0.0061 <0.05 (5% significance level) with a negative coefficient value, which means H1 is accepted. Hypothesis (H2) states that FDR (X2) has a significant positive effect on the financial stability of Islamic commercial banks. The results of this study indicate a probability value of 0.0000<0.01 (1% significance level), but the direction of the relationship is negative. So, it cannot accept the second hypothesis (H2). Furthermore, the t-statistic test results found that profitability (ROA) (X3) has a significant positive effect on the financial stability of Islamic commercial banks. It is evidenced by the probability value of 0.0000<0.01 (1% significance level), meaning H3 is accepted. Based on the results of the multiple regression analysis above, it is known that H1 and H3 are accepted but cannot accept H2.

Table 11: Multiple Linear Regression Results of Conventional Commercial Banks

Variable	Coefficient	Std. Error	z-Statistic	Prob.
NPL	28.80310	5.342126	5.391693	0.0000
LDR	-0.392867	0.048153	-8.158705	0.0000
ROA	10.01338	0.833974	12.00682	0.0000
C	-46.75889	31.13620	-1.501753	0.1332

The results of the t-statistical test are in Table 11. The robustness test is proof of a robust, valid, and unbiased research model (Sepriani & Candy, 2022). Robustness tests are also carried out to pass the classical assumption test; in other words, it can be stated that this test is a cure for heteroscedasticity and autocorrelation symptoms. The results show that NPL (X1) has a significant positive effect on the financial stability of conventional commercial banks. It is evidenced by the probability value of 0.0000 <0.05 (5% significance level). So, NPL affects financial stability. However, the direction of the relationship is different from the hypothesis. Thus, it cannot accept H1. Hypothesis (H2) states that LDR (X2) has a significant negative effect on the financial stability of conventional commercial banks. The results of this study indicate a probability value of 0.0000 <0.05 (5% significance level), which means that the LDR variable influences financial stability but has a different relationship with the hypothesis, so it cannot accept H2. Furthermore, the t-statistic test results found that profitability (ROA) (X3) has a significant positive effect on the financial stability of conventional commercial banks. It is evidenced by the probability value of 0.0000<0.1 (10% significance level), which means H3 is accepted. Based on the results of the multiple regression analysis above, it is known that H3 is accepted, but H1 and H2 cannot be accepted.

Moderated Regression Analysis (MRA)

Table 12: Results of Multiple MRA for Islamic Commercial Banks

Variable	Coefficient	Std. Error	z-Statistic	Prob.
NPF	38.09142	15.91248	2.393809	0.0167
FDR	-4.371624	2.108242	-2.073588	0.0381
ROA	3.645877	22.53988	0.161752	0.8715
YIELD	-3.438777	3.733421	-0.921079	0.3570
NPFXYIELD	-0.785469	0.315972	-2.485880	0.0129
FDRXYIELD	0.077442	0.042669	1.814963	0.0695
ROAXYIELD	0.068857	0.459410	0.149880	0.8809
C	249.5953	183.0908	1.363232	0.1728

Based on the results of the MRA test conducted with a sample of Islamic commercial banks, yield can moderate the relationship between NPF and Z-Score. It is evidenced by the probability value of 0.0129 <0.05 (5% significance level), meaning H4 is accepted. Furthermore, yield cannot moderate the effect of FDR on the financial stability of Islamic commercial banks (Z-Score). It is evidenced by the probability value of 0.0695>0.05 (5% significance level), which means not accepting H5. Furthermore, yield cannot moderate the relationship between the effect of profitability and Z-Score. It is evidenced by the resulting probability value of 0.8809>0.05 (5% significance level), meaning it cannot accept H6.

Table 13: Multiple MRA Results of Conventional Commercial Banks

Variable	Coefficient	Std. Error	z-Statistic	Prob.
NPL	-181.3885	63.55935	-2.853844	0.0055
LDR	-1.416962	0.637086	-2.224129	0.0289
ROA	10.60247	18.25193	0.580896	0.5629
INTEREST	-227.3162	65.88786	-3.450046	0.0009
NPLXINTEREST	41.06207	12.17825	3.371756	0.0011
LDRXINTEREST	0.190204	0.137448	1.383827	0.1702
ROAXINTEREST	-0.423988	3.953640	-0.107240	0.9149
C	1125.665	342.9528	3.282275	0.0015

Based on the results of the MRA test conducted with a sample of conventional commercial banks, the results show that interest net can moderate the relationship between the effect of non-performing loans (NPL) on the financial stability of conventional commercial banks (Z-Score). It is evidenced by the probability value of 0.0011 <0.05 (5% significance level), meaning H4 is accepted. Furthermore, net interest cannot moderate the relationship between FDR and Z-SCORE. The resulting probability value of 0.1702>0.05 (5% significance level) with a negative coefficient value means it cannot accept H5. The last MRA test result found that yield cannot moderate the relationship between profitability and banking stability (Z- Score). It is evidenced by the probability value of 0.9149 <0.05 (5% significance level), which means it cannot accept H6.

Discussion

Risk Management on Financial Stability (Z-Score)

The results of risk management research on Islamic banks found that the NPF variable has a significant negative effect on Z-Score. A high credit risk can worsen the bank's financial stability. A high NPF means the bank fails to distribute financing to customers because it will disrupt working capital turnover. Furthermore, liquidity risk, measured by the value of FDR, has a significant positive effect on the financial stability of Islamic banks. It means that Islamic banks make an excellent contribution to the financing process. The good liquidity capability of Islamic banks can help the smooth financing process, which in turn can create a stable bank financial system (Synatrya & Pramono, 2022). These results are from research conducted by Nugroho & Anisa (2018) and Yurida & Harahap (2023); NPF hurts the financial stability of Islamic banks. Furthermore, this result is also by research conducted by Ali et al. (2019) and Ben Jedidia & Salah (2022), where FDR has a significant positive effect on the financial stability of Islamic banks. that FDR has a significant positive effect on the financial stability of Islamic banks.

In conventional banking institutions, non-performing loans (NPLs) positively impact bank stability by enhancing the financial system's resilience. Conversely, the loan-deposit ratio (LDR) negatively affects the stability of these banks, as both excessively low and high LDRs can undermine their stability. A low LDR in conventional banks indicates inefficiencies in their lending operations. This result is supported by the research of Dwinanda & Sulistyowati (2021) and Ghenimi et al. (2017), which found that credit risk and liquidity can affect the stability of the bank's financial system. Furthermore, it is also supported by research by Kurniawati & Indriyani (2022), which explains that NPL influences the stability of the bank's financial system. which explains that NPL has a positive influence on banking financial stability.

The results of the two banks can be explained according to Paltrinieri et al. (2021) that there is often an agency conflict problem between depositors and borrowers there is often an agency conflict problem between depositors and borrowers, reflected in LDR on the stability of conventional banks. Because the quality of conventional bank financing assets is not based on underlying assets. It is in contrast to financing by Islamic banks, where most Islamic banks are based on underlying assets that can encourage the mitigation of bad credit risk. Islamic banking utilizes equity-based funding models like mudarabah and musharakah, contrasting with debt-based models like murabahah and ijarah. This difference is expected to enhance depositors' motivation to oversee and enforce discipline on bank management.

In addition, FDR and NPF reflect the compliance of Islamic banks with Sharia principles, especially in channeling financing to the real sector. Meanwhile, NPL and LDR do

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not necessarily reflect this. In practice, conventional banks conducting financing are not based on underlying and financing is not directly given to the real sector, which means that it makes the level of bad credit higher because if financing is not in clear use or utilization, it can result in misuse of credit given to the bank resulting in customers becoming defaulted in making payments. Furthermore, the level of NPF and FDR in Islamic banking tends to be lower than NPL and LDR in conventional banking, which means that the level of resilience and stability is better in Islamic banking.

Profitability to Financial Stability (Z-Score)

The hypothesis on the level of profitability in both types of conventional banking and Islamic banking on bank stability has a significant positive effect, meaning that both hypotheses are accepted. In line with research by Mala et al. (2018). This study aims to identify the type of hypothesis of industrial organization which exists in Islamic and conventional banks in order to investigate their readiness for AEC. The research sampling consists of 10 Islamic banks and 10 conventional banks from January 2009 to December 2016. To measure x-efficiency and scale efficiency, this research uses Data Envelopment Analysis (DEA), Pambuko et al. (2018) state that the higher a bank's profitability level, the more it operates to maintain its stability. It can be seen from the comparison between the profitability of conventional commercial banks and Islamic commercial banks that conventional commercial banks have a higher level of influence on stability than Islamic commercial banks, and this is in line with the *risk-return trade-off theory* where conventional banks can get high profits from the risk they get so that they have an impact on the company to provide banking stability from the profits they get.

However, the higher the bank's profits, the greater its franchise value, encouraging banks to operate prudently to maintain their reputation and stability. High profits allow banks to accumulate more outstanding capital and internal reserves, which are essential for the bank's ability to absorb risk and increase customer confidence in the stability of Islamic banks.

Yields of Islamic Commercial Banks and Conventional Commercial Banks in Moderating the Relationship of Risk Management Variables and Profitability to Financial Stability

The findings on yield were accepted as a moderating variable only on NPF and NPL on bank stability. In line with the research, when bad financing is low, the bank can share profit with its customers so that bank stability is not disturbed. Vice versa, if the bank's bad debt financing risk is problematic, it can disrupt bank stability. This study found differences between conventional commercial banks and Islamic commercial banks. Conventional yield value can moderate NPL but strengthen it because risk management in conventional banks is the value of yield, which means that the results do not run well, causing high bad debts a n d   disturbing stability. Banks are encouraged to offer more aggressive rates of return to borrowers to pay high returns to customers. Banks tend to spread credit risk with lax lending standards and massive financing disbursements in pursuit of profit. It increases the bank's risk exposure in the future. While the return value of Islamic commercial banks can moderate but weaken the NPF and bank stability, which means that the bad debt is low, the bank can provide profit sharing to its customers so that bank stability is not disturbed. Risk management in Islamic banks is better than that of conventional banks.

In the LDR and FDR variables, yields cannot moderate bank stability. In line with Widagdo & Ika's research (2020), the amount of LDR of a bank is not significantly influenced by the deposit yield offered by the bank. Likewise, Mursito's (2021) research on Islamic

commercial banks in Indonesia found that the level of profit sharing on deposits did not affect the FDR of Islamic banks. So, the LDR and FDR ratios are more determined by the bank's lending or financing policy, not by the interest rate or profit sharing on deposits the bank offers to its customers. So, the yield amount needs to be proven to moderate the two ratios regarding bank stability.

The impact of yield on profitability on bank stability cannot be moderated. In line with Hasriadi et al. (2022), high yields may negatively impact bank profitability by suggesting increased credit costs, lowering the bank's profit margin. However, if yield values remain stable in both conventional and Islamic commercial banks in Indonesia, they are unlikely to moderate the relationship between profitability and financial stability.

Conclusion

Our primary findings indicate that risk management indicators such as NPF and FDR values, alongside profitability metrics (ROA), significantly influence the stability of Islamic banks, as assessed by the Z-Score. Similarly, in conventional commercial banks, the study reveals that risk management indicators, specifically NPL and LDR values and profitability metrics (ROA), significantly impact bank stability as measured by the Z-Score. These findings highlight notable differences in the factors affecting stability between Islamic and conventional banks, underscoring the empirical contribution of this research.

Moreover, these findings are consistent with the existing literature, especially with the growing body of research on Islamic banks being more resilient in the face of crisis. We show that the level of risk experienced by Islamic banks is based on a clear measure of financing that can make Islamic banks more resilient in the face of bank stability shocks. Thus, in both conventional and Islamic banks, high profitability can strengthen bank stability in the face of economic turmoil. Profit is used to strengthen bank capital as a second line of defense. However, a balance is needed so that bank profitability continues to increase stability, not vice versa. Higher profits are not necessarily always good, and vice versa. Banks need to balance the two. Maintain public confidence and encourage prudent risk management for the long-term stability of the bank. Furthermore, regulators and bank managers should consider the implications of these results and the need to explore the relationship between risk and profitability further.

The limitation of this research is that the variables used still need to be improved. Further research will likely use macroeconomic variable indicators to examine the condition of banking stability through broad economic binoculars. The risk indicators also need to be completed; future researchers can add operational risk to learn more about its impact on financial stability.

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