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THE INFLUENCE OF FINANCIAL PERFORMANCE ON THE STABILITY OF ISLAMIC COMMERCIAL BANKS IN INDONESIA WITH GREEN BANKING AS A MODERATING VARIABLE

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Abstract

Financial performance in general is an important aspect in evaluating the financial stability of a bank. Banks involved in green banking activities tend to have a better reputation because they show concern for environmental issues. This study aims to analyze the effect of financial performance on the stability of Islamic banks with green banking as a moderating variable. The financial performance indicators used include the Capital Adequacy Ratio (CAR), Non-Performing Financing (NPF), Operating Expenses to Operating Income (OEOI), and Financing to Deposit Ratio (FDR). The population in this study consisted of 14 Islamic commercial banks. The sample selection used the nonprobability sampling method with a purposive sampling technique and obtained a sample of 10 Islamic commercial banks with a research period of 2020–2023, so that there were 40 research data. The analysis was carried out using panel data regression with the Random Effect Model (REM) approach and variable moderation tests using Moderated Regression Analysis (MRA) through the Eviews 12 program. The results showed that CAR had a significant positive effect on stability, FDR had a significant negative effect on stability, while NPF and OEOI had no effect on stability. Green banking weakens the influence of CAR and NPF on stability, strengthens the influence of FDR on stability, but does not moderate the influence of OEOI on stability. This shows that the role of green banking is quite good, but has not been able to improve all aspects of financial performance as a whole.

Keywords: Financial Performance; Stability; Green Banking; Islamic Commercial Banks

Abstrak

Kinerja keuangan secara umum merupakan aspek penting dalam menilai stabilitas keuangan suatu bank. Bank yang terlibat dalam kegiatan green banking cenderung memiliki reputasi yang lebih baik karena menunjukkan kepedulian terhadap isu lingkungan. Penelitian ini bertujuan untuk menganalisis pengaruh kinerja keuangan terhadap stabilitas bank syariah

dengan green banking sebagai variabel moderasi. Indikator kinerja keuangan yang digunakan meliputi Capital Adequacy Ratio (CAR), Non-Performing Financing (NPF), Operating Expenses to Operating Income (OEOI), dan Financing to Deposit Ratio (FDR). Populasi dalam penelitian ini terdiri dari 14 bank umum syariah. Pemilihan sampel menggunakan metode nonprobability sampling dengan teknik purposive sampling dan diperoleh sampel sebanyak 10 bank umum syariah dengan periode penelitian 2020–2023, sehingga diperoleh 40 data penelitian. Analisis dilakukan dengan menggunakan regresi data panel dengan pendekatan Random Effect Model (REM) dan uji moderasi variabel menggunakan Moderated Regression Analysis (MRA) melalui program Eviews 12. Hasil penelitian menunjukkan bahwa CAR berpengaruh positif signifikan terhadap stabilitas, FDR berpengaruh negatif signifikan terhadap stabilitas, sedangkan NPF dan OEOI tidak berpengaruh terhadap stabilitas. Green banking memperlemah pengaruh CAR dan NPF terhadap stabilitas, memperkuat pengaruh FDR terhadap stabilitas, namun tidak memoderasi pengaruh OEOI terhadap stabilitas. Hal ini menunjukkan bahwa peran green banking cukup baik, namun belum mampu meningkatkan seluruh aspek kinerja keuangan secara keseluruhan.

Kata Kunci: Kinerja Keuangan, Stabilitas, Green Banking, Bank Umum Syariah

A. Introduction

Environmental issues continue to be one of the most serious problems faced by developed and developing countries around the world[1]. Rapid and excessive industrialization, without taking precautions, has created various environmental problems such as energy resource degradation, climate change, deforestation and massive exploitation of natural resources (SDA) due to human activities, contributing to the decline in the quality of environmental resources.

Based on the Intergovernmental Panel on Climate Change report, the global average temperature in 2023 (until October) is around 1.40 ± 0.12 °C. and it is almost certain that 2023 will be the warmest decade recorded in 174 years of observation. Unusually warm temperatures were reported in most of eastern America, Mexico, and Central America, as well as western and southern

[1] Nomhle Ngwenya and Mulala D. Simatele, "The Emergence of Green Bonds as an Integral Component of Climate Finance in South Africa," *Journal of Science South African* 116, no. 1–2 (2020): 10–12, https://doi.org/10.17159/sajs.2020/6522.

America, South America. Western Europe and western North Africa, western Eurasia, Central and Southeast Asia, and Japan.[2] Climate change not only threatens health but also the welfare of society and the economy. Quality economic growth cannot be achieved without protecting the environment. According to Bappenas, Indonesia's potential losses due to climate change can reach IDR 100 trillion/year. Indonesia's characteristics as a maritime country make the impact of climate change tend to be higher.[3]

Starting from these problems, the concept of a green economy is increasingly being promoted as a sustainable development strategy. A green economy emphasizes economic growth that maintains environmental sustainability and social justice, both nationally and globally. Within this framework, the financial sector holds a strategic position to support the achievement of sustainable development goals. The implementation of a green economy in the banking sector is realized through the concept of green banking. While a green economy is a macro-level development framework, green banking is more micro-level and operational, namely banking practices that integrate sustainability principles into financing policies and daily operational activities. Thus, green banking can be seen as a concrete instrument for implementing a green economy in the banking sector.

In the financial sector, banks have a major impact on a country's economy, this is in accordance with the function of banking as an intermediary institution or intermediary between capital owners (fund suppliers) and fund users (fund users).[4] Initially, the banking industry was viewed as an environmentally neutral industry, but now it is recognized that banks are actually one of the main contributors to global climate change and environmental degradation

[2] World Meteorological Organization, "Provisional State of the Global Climate 2023," *Provisional State of the Global Climate 2023*, https://doi.org/10.18356/9789213586891.

[3] Bappenas, "Urgensi Pembangunan Rendah Karbon," 2022.

[4] Xin Zhang et al., "Do Green Banking Activities Improve the Banks' Environmental Performance? The Mediating Effect of Green Financing," *Sustainability (Switzerland)* 14, no. 2 (2022): 1–18, https://doi.org/10.3390/su14020989.

through various direct and indirect impacts .[5] The direct impact of banks on the environment is through their daily business operations. The direct impact of banks on the environment is relatively smaller when compared to other sectors such as manufacturing or transportation. However, the indirect impact of banks is the main cause for concern. Banks have a very large indirect impact on the ecosystem through financing their customers' activities.[6,7] Therefore, banks have an influential position that can change industry practices towards a more environmentally friendly approach and to achieve overall sustainability, banks must have a long-term plan to track the impact of their clients or projects on the environment.

The main challenge faced by Islamic banks today is how to improve and maintain the quality of service to build trust from Islamic bank stakeholders.[8] Companies need to continue to strive to gain support from stakeholders for the business activities carried out. One way to achieve this is to disclose information related to company activities, both related to financial and non-financial aspects.[9]

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[5] Syed Asim Ali Bukhari, Fathyah Hashim, and Azlan Amran, "Green Banking: A Road Map for Adoption," *International Journal of Ethics and Systems* 36, no. 3 (2020): 371–85, https://doi.org/10.1108/IJOES-11-2019-0177.

[6] Nabila Nisha, Mehree Iqbal, and Afrin Rifat, "Green Banking Adoption: An Examination of State-Owned Banks of Bangladesh," *International Journal of Technology and Human Interaction* 16, no. 2 (2020): 69–89, https://doi.org/10.4018/IJTHI.2020040106.

[7] Abdul Rehman et al., "Investigating the Asymmetrical Influence of Foreign Direct Investment, Remittances, Reserves, and Information and Communication Technology on Pakistan's Economic Development," *Economic Research-Ekonomska Istrazivanja* 36, no. 2 (2023), https://doi.org/10.1080/1331677X.2022.2131591.

[8] Siti Mardilia Farihah and Setiawan, "Determinan Intellectual Capital Terhadap Profitabilitas Di Bank Syariah: Pengujian Mediasi Kinerja Keuangan Dan Kinerja Non Keuangan," *Jurnal Samudra Ekonomi Dan Bisnis* 11, no. 2 (2020): 151–65, https://doi.org/10.33059/jseb.v11i2.1996.

[9] Trisnawati et al., "Pengaruh Pengungkapan Esg Pada Perusahaan Lq45Kehati Terhadap Kualitas Kinerja Perusahaan," *Aktiva : Jurnal Akuntansi Dan Investasi* 8, no. 2 (2023): 133–45, https://doi.org/10.53712/aktiva.v8i2.2154.

Overall green economic growth improves global financial stability in countries in both the short and long term.[10] Green banking practices with sustainable financial principles through environmentally friendly financing distribution policies can contribute to the stability of the financial system.[11] Green banking practices require companies to carry out activities that have minimal impact on the environment so that the programs carried out must have a "green" principle. Through these activities, green banking practices will keep the company's environment safe and comfortable. This will affect the sustainability and financial performance of the company in the future, so that in the future the company's environment will still be maintained and can improve the company's performance along with its environmental performance.

Healthy banking and a well-functioning intermediation function can generally be reflected in the stability of the financial system in banking. A bank can be declared healthy or free from financial distress if it is able to maintain the stability of the bank itself. An unstable financial system can come from a number of factors and fluctuations. If a bank experiences instability such as bankruptcy, it will affect the stability of the banking system and then affect the financial system.[12] The relationship between concentration and competition with banking stability in this study is measured through the Z-score which is a risk measurement to determine the possibility of a bank's failure in running its business in many empirical banking studies. The Z-score number is used as a proxy to measure the level of stability where the Z-score describes the occurrence of insolvency or bankruptcy. This proxy combines indicators of return on assets (ROA), equity vs. asset ratio (E/A), and stability of total asset returns (σ(ROA)). The more positive the Z-score value of a bank is away from

[10] Imran Abbas Jadoon et al., "The Impact of Sustainability Reporting Quality on the Value Relevance of Corporate Sustainability Performance," *Sustainable Development* 29, no. 1 (2021): 155–75, https://doi.org/10.1002/sd.2138.

[11] Lely Savitri Dewi, "Peranan Perbankan Dalam Mendukung Green Economy Melalui Green Financing," *Strategi Pengembangan Kinerja Koperasi Dan UMKM*, 2021, 161–69.

[12] *ibid*

zero, the further the bank is from the risk of bankruptcy.[13] Therefore, optimal banking management is a fundamental factor in maintaining the stability of the financial system.

Maintaining absolute stability is carried out by the banking itself with a picture of the bank's overall performance. The bank's financial performance will describe whether the banking sector is stable or not.[14] Bank performance can be seen from various aspects, namely liquidity, asset quality, profitability and efficiency. Banks with better performance will help maintain banking stability which will also support financial stability. [15,16] Liquidity is the ability of a bank to meet its obligations, especially short-term obligations. In addition, asset quality is the possibility of receiving funds invested in productive and non-productive assets to third parties with certain criteria to benefit the bank. Efficiency in the banking sector is also increasingly important because banks themselves are profit-seeking institutions. Banks will implement efficiency to minimize costs or maximize profits. In addition, bank performance can also be assessed from the adequacy of capital which is an important thing in the establishment of a bank, because it shows the bank's ability to provide funds used as reserves to overcome losses as a result of risky assets such as credit distribution, investment in securities, or bills on other banks that must be financed by their own capital.[17,18,19]

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[13] Mongi Lassoued, "Comparative Study on Credit Risk in Islamic Banking Institutions: The Case of Malaysia," *Quarterly Review of Economics and Finance* 70 (2018): 267–78, https://doi.org/10.1016/j.qref.2018.05.009.

[14] Ririt Iriani Sri Setiawati, "Analisis Pengaruh Faktor-Faktor Fundamental Kinerja Bank Dan Makro Ekonomi Terhadap Stabilitas Perbankan Di Indonesia," *Jurnal Ilmiah Bisnis Dan Ekonomi Asia* 14, no. 2 (2020): 123–32, https://doi.org/10.32812/jibeka.v14i2.194.

[15] Viral V. Acharya and Stephen G. Ryan, "Banks' Financial Reporting and Financial System Stability," *Journal of Accounting Research* 54, no. 2 (2016): 277–340, https://doi.org/10.1111/1475-679X.12114.

[16] Tobias Adrian and Nellie Liang, "Monetary Policy , Financial Conditions ," *International Journal of Central Banking*, no. January 2018 (2018): 73–131.

[17] Gabriella Chiesa and José Manuel Mansilla-Fernandez, "Non-Performing Loans, Cost of Capital, and Lending Supply: Lessons from the Eurozone Banking Crisis," *SSRN Electronic Journal*, 2018, https://doi.org/10.2139/ssrn.3259066.

Previous studies on banking stability have shown mixed results. Several studies have found that the Capital Adequacy Ratio (CAR) has a positive effect on bank stability,[20,21,22] while other studies have shown a negative effect.[23,24] A similar thing happened to the Non-Performing Financing (NPF) variable, which in several studies had a negative effect,[25,26] but in other studies it was found to have a positive effect.[27,28] The variable Operating Expenses to Operating Income (OEOI) also showed inconsistent results, where some studies found a negative effect on stability,[29,30,31,] while other studies showed a positive effect.[32]

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[18] Peterson Ozili, "Determinants of Banking Stability in Nigeria," *Munich Personal RePEc Archive*, no. 94092 (2019): 1–14, https://doi.org/https://doi.org/10.1080/23322039.2019.1664192.

[19] Chih Ching Yang, "Reduction of Non-Performing Loans in the Banking Industry: An Application of Data Envelopment Analysis," *Journal of Business Economics and Management* 18, no. 5 (2017): 833–51, https://doi.org/10.3846/16111699.2017.1358209.

[20] Josephat Lotto, "Evaluation of Factors Influencing Bank Operating Efficiency in Tanzanian Banking Sector," *Cogent Economics and Finance* 7, no. 1 (2019), https://doi.org/10.1080/23322039.2019.1664192.

[21] Besma Hamdi et al., "The Stability of Islamic and Conventional Banks in the MENA Region Countries During the 2007–2012 Financial Crisis," *Journal of the Knowledge Economy* 10, no. 1 (2019): 365–79, https://doi.org/10.1007/s13132-017-0456-2.

[22] Sintia Dewi Nur Ajizah and Agus Widarjono, "Indonesia Islamic Banking Stability in The Shadow of Covid-19 Outbreak," *Jurnal Ekonomi Syariah Teori Dan Terapan* 10, no. 1 (2023): 57–68, https://doi.org/10.20473/vol10iss20231pp57-68.

[23] Irwan Mangara Harahap, "Impact of Bank Performance on Profitability," *J. Econ. Bus. Manag* 5, no. 8 (2018), https://doi.org/ttps://doi.org/10.21276/sjebm.2018.5.8.3.

[24] Ozili, "Determinants of Banking Stability in Nigeria."

[25] Ahmad Fatoni and Sahabudin Sidiq, "Analisis Perbandingan Stabilitas Sistem Perbankan Syariah Dan Konvensional Di Indonesia," *Ekspansi: Jurnal Ekonomi, Keuangan, Perbankan Dan Akuntansi* 11, no. 2 (2019): 179–98, https://doi.org/10.35313/ekspansi.v11i2.1350.

[26] Dedi Kusmayadi, "Analysis of Effect of Capital Adequacy Ratio, Loan to Deposit Ratio, Non Performing Loan, Bopo, and Size on Return on Assets in Rural Banks at Indonesia," *Saudi Journal of Business and Management Studies (SJBMS)* 3, no. 7 (2018): 786–95, https://doi.org/10.21276/sjbms.2018.3.7.4.

[27] Ozili, "Non-Performing Loans and Financial Development: New Evidence."

[28] Harahap, "Impact of Bank Performance on Profitability."

[29] Yurida, Saparuddin Siregar, and Rahmad Daim Harahap, "Pengaruh Liquidity Risk Dan Credit Risk Terhadap Stabilitas Bank Dengan Operational Efficiency Sebagai Variabel Intervening Pada Bank Umum Syariah Di Indonesia," *Jurnal Ekonomi Dan Perbankan Syariah* 8, no. 3 (2023): 605–24, https://doi.org/10.30651/jms.v8i3.20787.

[30] Hassan Belkacem Ghassan and Abdelkrim Ahmed Guendouz, "Panel Modeling of Z-Score: Evidence from Islamic and Conventional Saudi Banks," *International Journal of Islamic and Middle Eastern Finance and Management* 12, no. 3 (2019): 448–68, https://doi.org/10.1108/IMEFM-04-2018-0122.

Differences in results were also seen in the Financing to Deposit Ratio (FDR) variable,[33] [34,35] which in several studies showed that FDR had a positive effect on bank stability, but in other studies it was found to have a negative effect.[36,37,38] Inconsistencies in previous research results prompted the author to reconsider the relationship between financial performance measured using the Capital Adequacy Ratio (CAR), Non Performing Financing (NPF), Operating Expenses to Operating Income (OEOI) and Financing to Deposit Ratio (FDR) on bank stability. Then what makes this study different from previous studies is that this study uses a moderating variable, namely green banking, which is a banking financing concept that encourages environmentally friendly practices. By including green banking as a moderating variable, the position and novelty in this study are clear. This study also uses a panel data regression model with

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[31] Faqih Nabhan and Sofi Ayu Nugraheni, "Peran Optimalisasi Liquidity Risk Terhadap Stabilitas Bank Umum Syariah Di Indonesia," *Jesya (Jurnal Ekonomi Dan Ekonomi Syariah)* 5, no. Vol 5 No 2 (2022): Article Research Volume 5 Number 2, Juni 2022 (2022): 2143–55, https://stiealwashliyahsibolga.ac.id/jurnal/index.php/jesya/article/view/806/451.

[32] Heri Sudarsono, "Analisis Pengaruh Kinerja Keuangan Terhadap Profitabilitas Bank Syariah Di Indonesia," *Economica: Jurnal Ekonomi Islam* 8, no. 2 (2017): 175–203, https://doi.org/10.21580/economica.2017.8.2.1702.

[33] Lotto, "Evaluation of Factors Influencing Bank Operating Efficiency in Tanzanian Banking Sector."

[34] Muhammad Budi Rifansa, Nur Aisyah, and F Pulungan, "The Effect of Capital Adequacy Ratio (CAR), Non-Performing Loan (NPL), Net Interest Margin (NIM), Loan to Deposit Ratio (LDR) and Operational Costs and Operational Revenue (BOPO) On Return on Assets (ROA) in Bank IV Indonesia," *Budapest International Researchand Critics Institute-Journal (BIRCI-Journal* 5, no. 2 (2022): 15723–37, https://doi.org/10.33258/birci.v5i2.5484.

[35] R. Rajindra et al., "Costs and Operational Revenue, Loan to Deposit Ratio against Return on Assets: A Case Study in Indonesia," *The Journal of Asian Finance, Economics and Business* 8, no. 5 (2021): 109–15, https://doi.org/10.13106/jafeb.2021.vol8.no5.0109.

[36] Muhammad Ali and Chin Hong Puah, "The Internal Determinants of Bank Profitability and Stability: An Insight from Banking Sector of Pakistan," *Management Research Review* 42, no. 1 (2019): 49–67, https://doi.org/10.1108/MRR-04-2017-0103.

[37] Elen Puspitasari et al., "The Relationship between Net Interest Margin and Return on Asset: Empirical Study of Conventional Banking in Indonesia," *Academic Journal of Interdisciplinary Studies* 10, no. 3 (2021): 362–74, https://doi.org/10.36941/AJIS-2021-0090.

[38] Deni Sunaryo, "The Effect Of Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), Non-Performing Loan (NPL), and Loan To Deposit Ratio (LDR) Against Return On Asset (ROA) In General Banks In Southeast Asia 2012-2018," *Ilomata International Journal of Management* 1, no. 4 (2020): 149–58, https://www.ilomata.org/index.php/ijjm.

Moderated Regression Analysis (MRA) to test the moderation hypothesis for a 4-year research period.

Based on the phenomena and research gaps from several studies in the background description above, the author is interested in conducting research entitled "The Effect of Financial Performance on the Stability of Islamic Commercial Banks with Green Banking as a Moderating Variable.

B. Research Method

The type of data used in this study is panel data. The data collection method is carried out by accessing annual reports and sustainability reports published on the websites of each Islamic comercial bank. The population of this study is Islamic commercial banks registered with the Financial Services Authority during the period 2020-2023. The reason the author chose the 2020-2023 period as the focus of the research is because most Islamic Commercial Banks (BUS) began implementing the green banking concept in 2020, after the issuance of Financial Services Authority Regulation Number 51/POJK.03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions, Issuers, and Public Companies. This period is considered the most relevant to the availability and completeness of the data needed for the research. Sampling in this study was conducted using the purposive sampling method, namely the selection of samples based on certain criteria made by the researcher. There are 14 banks registered with the Financial Services Authority, with a total sample of 10 Islamic Commercial Banks. The criteria for Islamic Commercial Banks used as samples in this study are:

Table 1. Sampling Criteria

No	Sampling Criteria	Sampling
1.	Sharia general banks registered with the Financial Services Authority during the 2020-2023 period	11
2.	Islamic commercial banks that publish financial reports and sustainability reports for the period 2020-2023	11

3.	Islamic commercial banks that implement and report the Green Banking concept during the 2020-2023 period	11
4.	Islamic commercial banks that have data that is free from outliers.	10
	Total Research Sample In the period 2020-2023	**10**

The data analysis technique used in this study uses the help of the E-views-12 application strategy as a statistical calculation instrument. This study was conducted in several stages. At the beginning, the researcher conducted a descriptive statistical analysis test, a classical assumption test, and in the last stage was hypothesis testing and to find out the results of moderation using Moderated Regression Analysis known as the MRA test.

C. Research Findings and Discussion

1. Description Analysis

Table 2. Descriptive Analysis of Research Variables

	Z-Score(Y)	CAR(X1)	NPF(X2)	OEO1(X3)	FDR(X4)	GB(Z)
Mean	4.744723	33.12650	1.296000	92.86450	83.76625	0.657148
Median	3.690650	25.70000	0.825000	84.54500	81.92500	0.666700
Maximum	15.13000	149.6800	4.950000	206.1900	196.7300	0.761900
Minimum	-2.071000	15.21000	0.000000	58.12000	38.33000	0.476200
Std. Dev.	4.572395	22.25277	1.443278	32.21426	24.96874	0.091634
Observations	**40**	**40**	**40**	**40**	**40**	**40**

Data Processing Source Eviews12, 2024

The stability of Islamic Commercial Banks is projected using the Z-score ROA. A high Z-score value will indicate that the bank is increasingly stable. The average value of the stability of Islamic commercial banks is recorded at 4.744, which is considered quite good, although there are still several banks that have negative z-score values.

The average Capital Adequacy Ratio (CAR) is 33.12%. Bank Indonesia has determined that the CAR level that can be categorized as healthy is >12%. On average, the sampled Islamic commercial banks have met Bank Indonesia's provisions. This can be interpreted that the bank's financial performance from the capital aspect is good and is able to reduce the risk of

potentially risky assets, although there are still several banks whose positions are above the maximum limit.

The average of Non-Performing Financing (NPF) is 1.29%. Bank Indonesia has determined that a reasonable NPF level is ≤7% of its total loan portfolio. In this case, the average NPF shown in the descriptive statistics is 2.73%, indicating that this figure is still far from the limit of non-performing credit risk.

The average Operating Expenses to Operating Income (OEOI) ratio of 92.86% indicates that Islamic banks' operational performance remains within the reasonable limits set by Bank Indonesia (<94%–95%). This indicates that Islamic banks are able to effectively manage their revenues and operating costs.

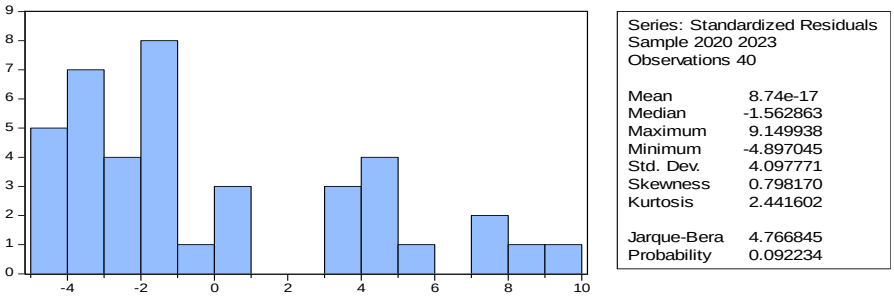
The average Financing to Deposit Ratio (FDR) of 83.76% is considered quite good because it is still between the lower limit (80%) and the upper limit (95%), although there are still several banks whose positions are below the minimum limit and above the maximum limit.

Green Banking (GB) in this study refers to the Green Banking Disclosure Index (GDBI) indicator. A high Green Banking Disclosure Index (GDBI) value will indicate that the bank discloses more green banking practices.The average Green Banking (GB) value is 0.65, so it can be concluded that on average the sampled Islamic commercial banks have paid attention to the green banking aspect.

2. Classical Assumption Test

a. Normality Test

Table 3. Results of Normality Test of Research Variables



Data Processing Source Eviews12, 2024

Based on table 3, the test results show a residual value in Jarque-Bera of 4.766845 and a probability value of 0.092234 or (p > 0.05), so it can be concluded that the residual in this research model is normally distributed.

b. Multicollinearity Test

Table 4. Results of Multicollinearity Test of Research Variables

	CAR (X1)	NPF (X2)	OEOI (X3)	FDR (X4)	GB (Z)
CAR (X1)	1.000000	-0.225679	-0.157048	0.030039	-0.342756
NPF (X2)	-0.225679	1.000000	0.432560	0.366003	-0.128161
OEOI(X3)	-0.157048	0.432560	1.000000	0.160641	-0.099101
FDR (X4)	0.030039	0.366003	0.160641	1.000000	-0.090475
GB (Z)	-0.342756	-0.128161	-0.099101	-0.090475	1.000000

Data Processing Source Eviews12, 2024

Based on table 4, the results of the multicollinearity test using the paired correlation method obtained results where the paired correlation value of each independent variable <α 0.85, it can be concluded that there is no multicollinearity problem.

c. Heteroscedasticity Test

Table 5. Results of Heteroscedasticity Test of Research Variables

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.569854	2.895026	0.196839	0.8451
CAR (X1)	-0.490423	0.756238	-0.648504	0.5210
NPF (X2)	-10.09564	15.88193	-0.635668	0.5292
OEOI(X3)	-0.219890	0.547869	-0.401356	0.6907
FDR (X4)	0.240893	0.749044	0.321600	0.7497
GB (Z)	4.790639	3.717267	1.288753	0.2062

Data Processing Source Eviews12, 2024

Based on table 5, the results of the heteroscedasticity test using the glacier test method with probability values of each independent variable are X1 = 0.5210, X2 = 0.5292, X3 = 0.6907, X4 = 0.7497 and Z = 0.2062 > α 0.05, it can be concluded that there is no heteroscedasticity problem in the data distribution.

d. Autocorrelation Test

Table 6. Results of Autocorrelation Test of Research Variables

Durbin- Watson
1.735212

Data Processing Source Eviews12, 2024

Based on table 6, the results of the autocorrelation test using the Durbin-Watson (D-W) method obtained a value of 1.735212 located in the doubtful area, namely between dU of 1.854 and dL of 1.175. So that the autocorrelation test of the panel data regression model in this study cannot be concluded.

3. Hypothesis Test

a. Partial Test (t-Test)

Table 7. Partial Test Results (t-Test)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	40.05629	7.761931	5.160609	0.0000
CAR (X1)	79.24778	6.006239	13.19424	0.0000
NPF (X2)	207.9994	105.1333	1.978435	0.0571
OEOI (X3)	-4.633994	5.485976	-0.844698	0.4050
FDR (X4)	-74.12967	9.555805	-7.757554	0.0000
GB (Z)	-38.19059	11.61714	-3.287434	0.0026
X1*Z	-150.3803	10.82945	-13.88623	0.0000
X2*Z	-686.7389	167.2967	-4.104917	0.0003
X3*Z	0.539468	8.439111	0.063925	0.9495
X4*Z	117.3410	14.43729	8.127635	0.0000

Data Processing Source Eviews12, 2024

Based on table 7, above, it can be seen that the CAR variable (X1) has a positive and significant effect on the Stability of Islamic Commercial Banks, the NPF variable (X2) and OEOI (X3) do not affect the Stability of

Islamic Commercial Banks and the FDR variable (X4) has a negative and significant effect on the Stability of Islamic Commercial Banks.

As for the results of the MRA test, the results obtained are that the Green Banking (GB) variable as a moderating variable is partially able to moderate by weakening the influence of the Capital Adequacy Ratio (CAR) and Non Performing Ratio (NPF) on the Stability of Islamic Commercial Banks, while green banking is not able to moderate the Influence of Operating Expenses to Operating Income (OEOI) variable on the Stability of Islamic Commercial Banks. Then the Green Banking (GB) variable as a moderating variable is partially able to moderate by weakening the influence of the FDR (X4) variable on the Stability of Islamic Commercial Banks.

b. Simultaneous Test (f Test)

Table 8. Simultaneous Test Results (F Test)

F-statistic	10.07106
Prob(F-statistic)	0.000001

Data Processing Source Eviews12, 2024

Based on table 8, the results of the simultaneous test (f test) show that the Probability F-statistic value is 0.000001 <α 0.05, so Ha is accepted and means that all independent variables, namely Capital Adequacy Ratio (CAR), Non Performing Financing (NPF), Operating Expenses Operating Income (OEOI) and Financing to Deposit Ratio (FDR) with Green Banking (GB) as a moderating variable simultaneously have an influence on the dependent variable, namely the Stability of Islamic Commercial Banks.

c. Coefficient of Determination (R^2)

Table 9. Results of the Determination Coefficient (R^2)

R-squared	0.751325
Adjusted R-squared	0.67723

Data Processing Source Eviews12, 2024

Based on table 9, the results of the determination coefficient test (R2 test) in model II, it can be seen that the R-squared value is 0.751325 or 75.51%. From the results of the determination coefficient test (R^2 test), it can be interpreted that the variables Capital Adequacy Ratio (CAR), Non Performing Financing (NPF), Operating Expenses Operating Income (OEOI) and Financing to Deposit Ratio (FDR) with Green Banking (GB) as a moderating variable are able to explain the dependent variable, namely the Stability of Islamic Commercial Banks by 75.51% and 24.49% is explained or described by other variables not included in this study.

The discussion in this study is explained as follows:

1. The Effect of Capital Adequacy Ratio (CAR) on the Stability of Islamic Commercial Banks

Based on table 7, the test results for hypothesis 1 show that the Capital Adequacy Ratio (CAR) variable as an independent variable has a regression coefficient of 79.24778 and a t-count value of 13.19424 which is greater than the t-table value of 2.032245 with a probability value of 0.0000 <0.05, it can be concluded that the Capital Adequacy Ratio (CAR) variable has a positive and significant effect on the Stability of Islamic Commercial Banks.

The greater the CAR, the more stable the bank, because the adequacy of capital owned by the bank allows the bank to be more flexible in financing risky assets and also carrying out business development.[39] When viewed from the empirical conditions of the object of this study, it will be seen that Islamic banks have an average CAR value in the study period of 33.12%, far above the minimum CAR limit set by Bank Indonesia, which is 8%. This reflects the bank's compliance with

[39] Ahmad Aulia Ridho and Rr. Karlina Aprilia, "Analisis Rasio Kesehatan Keuangan Perbankan Terhadap Kinerja Keuangan" 13, no. 30 (2024): 1–14, https://doi.org/http://ejournal-s1.undip.ac.id/index.php/accounting.

regulations and commitment to maintaining public trust. This finding is in line with stakeholder theory and several previous studies which found that there is a positive relationship between CAR and bank stability.[40,41,42]

2. The Influence of Non Performing Financing (NPF) on the Stability of Islamic Commercial Banks

Based on the results of hypothesis 2 testing shown in table 7, it can be seen that the Non-Performing Financing (NPF) variable as an independent variable has a regression coefficient of 207.9994 and a t-count value of 1.978435 smaller than the t-table of 2.032245 with a probability value of 0.0571> 0.05, it can be concluded that the Non-Performing Financing (NPF) variable has no effect on the Stability of Islamic Commercial Banks.

The factor that causes banking NPF to have no effect on bank stability is because the increase in NPF is accompanied by an increase in the effectiveness of bank operational performance management. If a bank experiences an increase in the number of bad loans, the initial step that must be taken is to evaluate its performance by stopping financing distribution until the NPF/NPL ratio shows a decrease. During the 2020-2023 period, Islamic commercial banks registered with the Financial Services Authority (OJK) have sufficient capital to enable banks to manage risks effectively. The findings in this study are in accordance

[40] Lotto, "Evaluation of Factors Influencing Bank Operating Efficiency in Tanzanian Banking Sector."

[41] Kusmayadi, "Analysis of Effect of Capital Adequacy Ratio, Loan to Deposit Ratio, Non Performing Loan, Bopo, and Size on Return on Assets in Rural Banks at Indonesia."

[42] Nur Ajizah and Agus Widarjono, "Indonesia Islamic Banking Stability in The Shadow of Covid-19 Outbreak."

with several previous studies which found that NPF has no effect on bank stability.[43, 44,45]

3. The Influence of Operating Expenses on Operating Income (OEOI) on the Stability of Islamic Commercial Banks

Based on the results of hypothesis testing 3 shown in table 7, it can be seen that the variable Operating Expenses to Operating Income (OEOI) as an independent variable has a regression coefficient of -4.633994 and a t-count value of -0.844698 smaller than the t-table of 2.032245 with a probability value of 0.4050> 0.05. Therefore, it is concluded that the variable Operating Expenses to Operating Income (OEOI) does not affect the Stability of Islamic Commercial Banks.

A high OEOI ratio indicates the need for large costs to generate high operating income. However, effective operational efficiency makes these costs not have much impact on bank stability. Financial performance remains optimal because management is able to manage costs well. The results of this study are in line with several previous studies that stated that OEOI has no significant effect on bank stability.[46, 47, 48]

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[43] Fatoni and Sidiq, "Analisis Perbandingan Stabilitas Sistem Perbankan Syariah Dan Konvensional Di Indonesia."

[44] Noer Cholifa Mauliddia and Henny Saraswati, "Kesehatan Bank Terhadap Pertumbuhan Laba Pada Bank Tabungan Pensiun Nasional Syariah Periode 2014-2021" 9, no. 2 (2024): 1–16, https://wahanaislamika.staisw.ac.id/index.php/WI/article/view/103.

[45] Yulvista Galuh Kirana, "Pengaruh Makro Ekonomi Dan Mikro Ekonomi Terhadap Profitabilitas Pada Bpr Syariah Di Indonesia," *Business Management Analysis Journal (BMAJ)* 4, no. 2 (2021): 54–66, https://doi.org/10.24176/bmaj.v4i2.6642.

[46] Andini Febriyanti Hariono and Imam Azizuddin, "Analisis Kinerja Keuangan Terhadap Financial Distress Pada Bank Umum Syariah Di Indonesia Periode 2016-2020," *Jurnal Ekonomi Syariah Teori Dan Terapan* 9, no. 2 (2022): 273–85, https://doi.org/10.20473/vol9iss20222pp273-285.

[47] Abdul Rashid, Saba Yousaf, and Muhammad Khaleequzzaman, "Does Islamic Banking Really Strengthen Financial Stability? Empirical Evidence from Pakistan," *International Journal of Islamic and Middle Eastern Finance and Management* 10, no. 2 (2017): 130–48, https://doi.org/10.1108/IMEFM-11-2015-0137.

[48] Jihan Humaira, Benny Barnas, and Kristianingsih Kristianingsih, "Pengaruh Kinerja Keuangan Dan Penerapan GCG Terhadap Potensi Kebangkrutan Pada PT Bank

4. The Influence of Financing to Deposit Ratio (FDR) on the Stability of Islamic Commercial Banks

Based on the results of hypothesis testing 4 shown in table 7, it can be seen that the Financing to Deposit Ratio (FDR) variable as an independent variable has a regression coefficient of -74.12967 and a t-count value of -7.757554 which is greater than the t-table of 2.032245 with a probability value of 0.0026 <0.05. In conclusion, the Financing to Deposit Ratio (FDR) variable is proven to have a negative and significant effect on the stability of Islamic Commercial Banks.

Financing to Deposit Ratio (FDR) measures the comparison between the financing channeled and the third party funds collected, and functions as an indicator of bank liquidity. The ideal FDR value is below 100%, because if it exceeds that number, the bank may use funds from a second party such as a Repurchase Agreement (REPO), which risks creating a maturity gap and disrupting stability. The results of the study are in line with several previous studies which show that FDR has a negative effect on bank stability.[49,50,]

5. Green Banking moderates the effect of Capital Adequacy Ratio (CAR) on the Stability of Islamic Commercial Banks

Based on the results of testing hypothesis 5 shown in table 7, after using the moderating variable, namely Green Banking (GB), the regression coefficient value is -150.3803 and the t-count value is -13.88623 which is greater than the t-table value of 2.032245 with a probability

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Muamalat Indonesia Tbk," *Journal of Applied Islamic Economics and Finance* 1, no. 2 (2021): 373–83, https://doi.org/10.35313/jaief.v1i2.2471.

[49] Ramona Rupeika-Apoga, Inna Romānova, and Simon Grima, "The Determinants of Bank'S Stability: Evidence From Latvia, a Small Post-Transition Economy," *Contemporary Studies in Economic and Financial Analysis* 104 (2020): 235–53, https://doi.org/10.1108/S1569-375920200000104016.

[50] Sunaryo, "The Effect Of Capital Adequacy Ratio (CAR), Net Interest Margin (NIM), Non-Performing Loan (NPL), and Loan To Deposit Ratio (LDR) Against Return On Asset (ROA) In General Banks In Southeast Asia 2012-2018."

value of 0.0000 <0.05. Therefore, it is concluded that the Green Banking (GB) variable functions as a moderating variable that can partially reduce the effect of Capital Adequacy Ratio (CAR) on the Stability of Islamic Commercial Banks.

The results of the MRA test show that green banking acts as a quasi moderator that weakens the relationship between the Capital Adequacy Ratio (CAR) and the stability of Islamic banks. This is due to the high operational costs, HR training, and investment in environmentally friendly technology that can reduce capital adequacy and profitability, thus negatively impacting bank stability. This finding is in line with previous research which states that the implementation of green banking increases the burden on banks.[51]

6. **Green Banking moderates the influence of Non Performing Financing (NPF) on the Stability of Islamic Commercial Banks**

Based on the results of testing hypothesis 6 shown in table 12, after using the moderating variable, namely Green Banking (GB), the regression coefficient value is -686.7389 and the t-count value is -4.104917 which is greater than the t-table value of 2.032245 with a probability value of 0.0003 <0.05, it can be concluded that the Green Banking (GB) variable as a moderating variable is partially able to moderate by weakening the influence of the Non Performing Financing (NPF) variable on the Stability of Islamic Commercial Banks.

The results of the MRA test show that green banking acts as a quasi moderator that weakens the relationship between Non Performing Financing (NPF) and the stability of Islamic banks. Green banking, which emphasizes environmentally friendly banking practices, can reduce

[51] Etikah Karyani and Vangi Vinanda Obrien, "Green Banking and Performance: The Role of Foreign and Public Ownership," *Jurnal Dinamika Akuntansi Dan Bisnis* 7, no. 2 (2020): 221–34, https://doi.org/10.24815/jdab.v7i2.17150.

credit, legal, and reputational risks. Through sustainable financing and strict project selection, green banking is able to reduce the negative impact of NPF on bank stability. This is in accordance with stakeholder and legitimacy theories that emphasize the importance of meeting public expectations and maintaining the bank's reputation.

7. **Green Banking moderates the effect of Operational Expenses on Operational Income (OEOI) on the Stability of Islamic Commercial Banks**

   Based on the results of testing hypothesis 7 shown in table 7, after using the moderating variable, namely Green Banking (GB), the regression coefficient value is 0.539468 and the t-count value is 0.063925 which is smaller than the t-table value of 2.032245 with a probability value of 0.9495> 0.05. Thus, the results of the study indicate that the Green Banking (GB) variable cannot act as a partial moderating variable on the effect of Operational Expenses on Operational Income (OEOI) on the Stability of Islamic Commercial Banks.

   This study shows that green banking acts as an independent variable that forms a positive image, but does not moderate the relationship between OEOI and the stability of Islamic banks. This is in accordance with the legitimacy theory, where environmentally friendly practices build a good reputation. However, the influence of green banking on financial performance is still low because its implementation is not optimal. Most Islamic banks have only started implementing this concept since 2020 after POJK regulation No. 51/POJK.03/2017, and only one bank has won a green banking award, namely Bank Tabungan Pensiunan Nasional. Implementation is still limited to simple practices such as e-statements to reduce paper use, while energy use such as electricity must still be used every day in bank operations.

8. Green Banking Ratio moderates the influence of Financing to Deposit Ratio (FDR) on the Stability of Islamic Commercial Banks

Based on the results of hypothesis testing 8 shown in table 7, after using the moderating variable, namely Green Banking (GB), the regression coefficient value is 117.3410 and the t-count value is 8.127635 which is greater than the t-table value of 2.032245 with a probability value of 0.0000 <0.05. In conclusion, the Green Banking (GB) variable acts as a moderating variable that is partially able to strengthen the influence of Financing to Deposit Ratio (FDR) on the Stability of Islamic Commercial Banks.

The MRA test results show that green banking acts as a quasi moderator that strengthens the relationship between Financing to Deposit Ratio (FDR) and the stability of Islamic banks. Green banking, through environmentally friendly practices, is able to reduce credit, legal, and reputation risks, thereby increasing customer trust and the effectiveness of third-party fund management. This supports increased liquidity and bank stability. This finding is in line with stakeholder and legitimacy theories, where green banking helps meet public expectations and build a positive bank reputation.

D. Conclusion

This study concludes that financial performance moderated by green banking simultaneously has a significant effect on the stability of Islamic banks. Partially, Capital Adequacy Ratio (CAR) has a significant positive effect, while Non Performing Ratio (NPF) and Operating Expenses to Operating Income (OEOI) have no significant effect. Financing to Deposit Ratio (FDR) has a significant negative effect on stability. Green banking weakens the relationship between Capital Adequacy Ratio (CAR) and Non Performing Ratio (NPF) on stability, but strengthens the relationship between Financing to Deposit Ratio (FDR) on stability. Meanwhile, green

banking is unable to moderate the effect of Operating Expenses to Operating Income (OEOI) on bank stability. This shows that the practice of green banking is quite satisfactory but has not been able to improve the overall financial performance or stability of Islamic commercial banks.

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