



Non-Performing Financing (NPF) on Islamic Rural Banks in Indonesia: Bibliometric Analysis and Literature Review

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Abstract

Although Islamic Rural Banks (IRBs) have experienced substantial expansion, Non-Performing Financing (NPF) remains a persistent issue. The NPF levels of Indonesian IRBs often exceed the maximum threshold established by Bank Indonesia. This study conducts an extensive bibliometric analysis and literature review of NPF in IRBs in Indonesia. Using Publish or Perish (PoP) software, articles from the Google Scholar database were analyzed. Out of 1,000 articles identified from 2020 to 2024, 35 were deemed relevant and selected for analysis. The data analysis included: (1) Mapping journal publication trends related to NPF in IRBs; (2) Utilizing VOSviewer for bibliometric visualization; and (3) Reviewing research topics on NPF in IRBs through a literature review. The findings provide a comprehensive view of publication timelines, journals, citation rates, authorship, research subjects, and methodologies used. Six primary topics on the effects of NPF and 22 topics on its determinants were identified. This study serves as a valuable reference for future research by presenting potential topics, methodologies, variables, and recommendations for investigating NPF in IRBs.

Keywords: Non-performing financing, Islamic rural banks, bibliometric analysis, literature review

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1. Introduction

An Islamic bank, as defined by the Republic of Indonesia's law number 21 of 2008 on Sharia banking, is a financial institution that conducts economic activities adhering to Sharia principles. These institutions are categorized as Islamic Commercial Bank (ICB) and Islamic Rural Bank (IRB).

ICBs differ from IRBs in operational aspects, services, foreign exchange transactions, ownership entities, and minimum capital requirements. While ICBs offer diverse financial services requiring a minimum capital of IDR 3 trillion, IRBs, primarily operating in rural areas, are prohibited from collecting time deposits or conducting foreign exchange transactions. The minimum capital for IRBs varies by region, starting from IDR 5 billion for Jakarta, while smaller cities require less. IRBs focus on micro and small-scale financing, filling a critical gap by supporting small and medium-sized enterprises (SMEs), which are often underserved by larger financial institutions (Mawardi et al., 2023).

Islamic Commercial Banks (ICB) and Islamic business units currently hold a dominant position in the Islamic finance market in Indonesia. Nevertheless, these institutions typically prioritize large-scale investments, thus not reaching the provision of capital for small and medium-sized enterprises (SMEs). Therefore, the existence of Islamic Rural Banks (IRB) is crucial, as they focus primarily on providing small and micro-scale financing in rural areas.

Despite their significance, IRBs face persistent challenges, particularly regarding NPF, which often exceeds Bank Indonesia's 5% threshold. For instance, in October 2019, the NPF rate for IRBs was 8.28% (Priyadi et al., 2021).

If there is a possibility that the contract cannot be executed according to the agreed terms, this is referred to as non-performance risk. Non-performance risk, or credit risk, arises when borrowers fail to meet contractual

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Article history

Received: 9 October 2024

Accepted: 22 December 2024

obligations (Brown & Moles, 2008). Risks may arise from unexpected strategic changes. Despite thorough planning, there is still a possibility that activities may not proceed as expected (Anggraini & Harianto, 2023). Credit risk in conventional banks is typically represented by Non-Performing Loans (NPL) (Priyadi et al., 2021). These loans are classified as non-performing when borrowers fail to make the agreed payments for a certain period. However, the time required for a loan to become non-performing may vary based on the specific conditions of the loan (Kavirathne et al., 2022).

Unlike conventional banks that operate within a debtor-creditor framework, resulting in all their products being exposed to credit risk (Haryono et al., 2016), In Islamic banking, this risk manifests differently compared to conventional banking due to unique contractual structures, including profit-and-loss sharing (PLS) mechanisms. These financial instruments are typically represented as various forms of financing, rather than “loans” (Bhala, 2012). Credit risk arises in fee-based product agreements, such as sales, leasing, or specific sales with deferred payment, due to uncertainty about timely and full repayment. This risk is heightened if there is no provision for delayed repayment guarantees. Credit risk emerges in transactions involving delayed delivery, due to non-delivery of goods, delayed delivery, or delivery of defective goods. In equity-based contracts like *mudharabah* and *musharakah*, the risk is the reduction in capital value (Jobst & Sole, 2020).

Previous studies on credit risk largely focus on Non-Performing Loans (NPLs) in conventional banks. For instance, Nikolopoulos & Tsalas (2017) reviewed NPL determinants at micro and macro levels. The results indicate that Non-Performing Loan (NPL) is a common indicator of credit risk. Factors influencing NPL at the micro level include bank-specific factors such as bad luck, skimping, moral hazard, size effect, bad management, and procyclical credit policy. Meanwhile, at the macro level, NPL is influenced by macroeconomic factors such as GDP, public debt, unemployment, and inflation/deflation. Khairi et al. (2021) also identified variables affecting NPL. Based on 21 relevant articles, the study found that macroeconomic variables such as GDP and inflation, as well as bank management (market structure and managerial skills), significantly impact NPL.

Almuraikhi (2022) highlighted interactions among borrower profiles, bank-specific factors, and macroeconomic conditions in NPL trends. However, this relationship is not yet fully understood, particularly in the context of Islamic banks. Islamic banks use profit-sharing contracts that positively moderate NPLs, but further research is needed to explore how these interactions occur with bank-specific and macroeconomic factors. On the other hand, the behaviour of Islamic and conventional banks tends to be similar in many aspects related to bank-specific and macroeconomic factors. Nevertheless, there is a critical research gap regarding the prediction of NPLs based on borrower behaviour in Islamic banks. Alnabulsi et al. (2023) conducted a systematic review of 76 studies on the determinants of NPLs published between 1987 and 2022 in the Web of Science and Scopus databases. The findings reveal that macroeconomic factors (GDP, unemployment, and inflation), bank-specific factors (management and credit risk), and industry factors (regulation and market conditions) significantly influence NPLs.

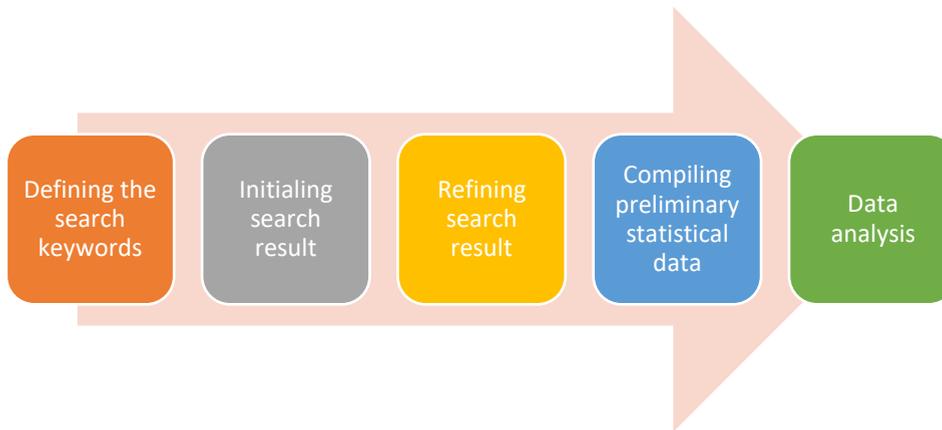
Dimitrios (2023) examined global approaches to addressing NPLs, categorized into two strategies: ex-ante (prevention) and ex-post (resolution). The results show that prevention involves strict regulations, risk evaluations, and mitigation strategies, while post-event resolution includes the use of Asset Management Companies (AMCs) and debt restructuring. Wahyu & Budiarto (2023) mapped credit risk in Islamic and conventional banking from 1975 to 2022 using bibliometric analysis (VOSviewer) to identify research trends and clusters. The findings indicate the existence of five clusters and 84 topics. While these studies provide valuable insights, there remains a significant gap in research focusing on NPF in IRBs, particularly in Indonesia. This study addresses this gap by conducting a bibliometric analysis and literature review to explore NPF in IRBs.

This study is divided into 4 parts. The Introduction provides the background of the research and a literature review on previous works. Next, the Methodology explains the approach used to conduct the research. The Findings and Discussions section presents the results of the study and elaborates on their implications. Finally, the Conclusion summarizes the entire research, highlights its limitations, and proposes suggestions for future research.

2. Research Methodology

This research employed a mixed-methods approach, combining quantitative bibliometric analysis and qualitative literature review. The research object was NPF in Indonesian IRBs. The bibliometric analysis followed five stages (see Figure 1) outlined by (Tranfield et al., 2003) and (Setyaningsih et al., 2019).

Figure 1: Schematic diagram of the study



2.1 Defining the search keywords

The selected search keywords were: “Non AND Performing AND Financing AND Islamic AND Rural AND Bank AND Indonesia.”

2.2 Initialing search results

The initial search, conducted in May 2024, used the Google Scholar database via PoP software. A maximum of 1,000 articles, published between 2020 and 2024, were targeted.

2.3 Refining search results and compiling preliminary statistical data

The initial results were refined based on relevance to NPF in IRBs. Criteria included:

- i. Alignment of titles, abstracts, and keywords with NPF and IRB-related terms.
- ii. Exclusion of duplicate or inaccessible articles.
- iii. Focus on peer-reviewed journal articles.

This process resulted in 35 relevant articles, saved in CSV format for analysis.

2.4 Data analysis

Quantitative analysis utilized PoP and VOSviewer. PoP identified publication trends, citation metrics, and authorship patterns, while VOSviewer generated network, overlay, and density visualizations. Qualitative analysis reviewed the 35 selected articles to map research topics.

3. Findings

3.1 Article Search

The initial data search on the Google Scholar database was conducted using PoP Software, resulting in the collection of 1000 articles, which were then stored in Excel for a four-stage screening process (see Table 1). The stages were as follows:

- i. Identifying the alignment between titles, abstracts, and keywords. The essential terms that needed to be present in each selected paper/journal were Non-Performing Financing (NPF) or Non-Performing Loan (NPL) or Financial Performance, and Islamic Rural Bank (IRB) or Bank Perkreditan Rakyat Shariah (BPRS) or Islamic Microfinance (IMFI), along with Indonesia. The terms Financing, Loan, Bank, and Microfinance could be in singular or plural forms.
- ii. Removing duplicated articles.
- iii. Selecting only scientific journals, excluding books and scientific proceedings.

iv. Selecting only fully accessible scientific journals.

Based on these four criteria, 35 scientific journals met the requirements. Here is the comparison between the initial search results and after screening:

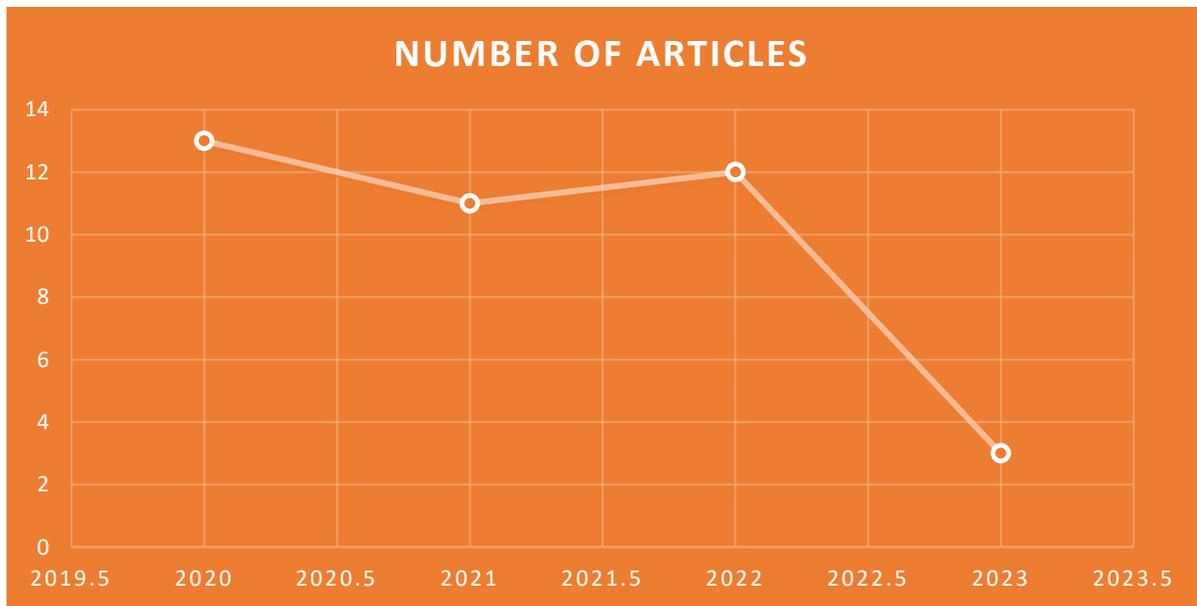
Table 1. Comparison metric

Metric Data	Initial search	Refine search
Source	Non-Performing Financing of Islamic Rural Banks in Indonesia	Non-Performing Financing of Islamic Rural Banks in Indonesia
Publication years	2020-2024	2020-2023
Papers	1000	35
Citations	23490	879
Citation per year	5872.50	219.75
Citation per paper	23.49	25.11
h-Index	67	14
g-Index	102	29
hI_norm	42	10
hI_annual	10.50	2.50

3.2 Publication Trend

From 2020 to 2023, Figure 2 outlines that publication numbers fluctuated, peaking in 2020 but declining sharply in 2023. The COVID-19 pandemic significantly affected research output.

Figure 2: Periodic evaluation of the number of publications



3.3 Citation and Journal Distribution

Among the 35 articles, the most cited work was by Firas et al. (2020), with 117 citations. Table 2 lists the top five cited articles, showcasing key contributions to NPF research.

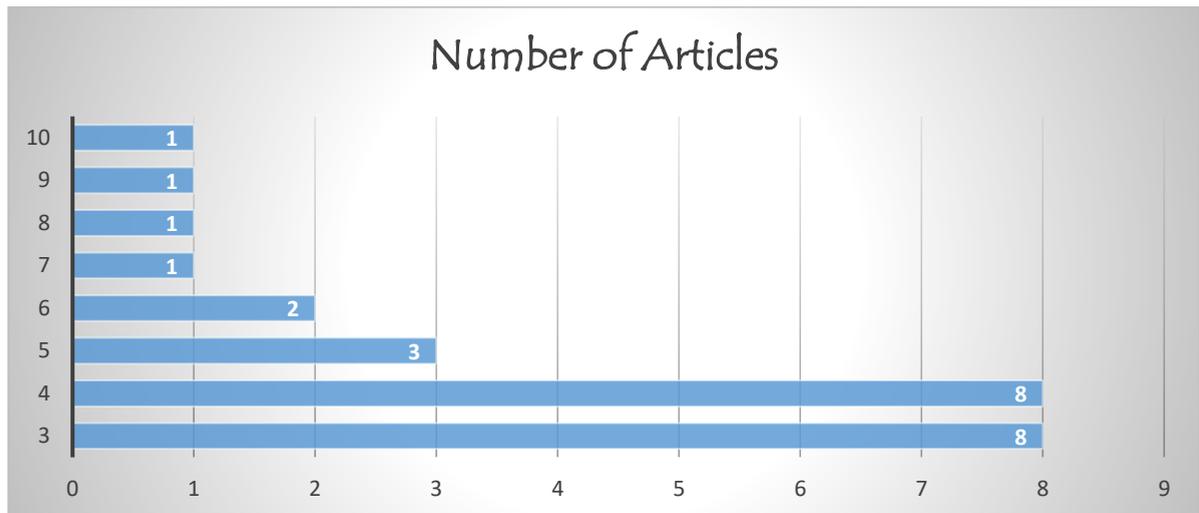
Table 2: The Top 5 Highest Citation Articles

Year	Authors	Title	Journal	Citation
2020	HFT Kuncoro, S Anam, M Sanusi	Analisis Pengaruh Dana Pihak Ketiga dan Non Performing Financing Terhadap Return On Asset Pada BPRS Di Indonesia	Jurnal Manajemen Dan Bisnis Indonesia	117
2020	Wasiaturrahma, R Sukmana, SR Ajija, SCU Salama, A Hudaifah	Financial performance of rural banks in Indonesia: A two-stage DEA approach	Heliyon	97
2021	U Priyadi, KDS Utami, R Muhammad, P Nugraheni	Determinants of credit risk of Indonesian Shari'ah rural banks	ISRA International Journal of Islamic Finance	77
2022	E Endri, N Fatmawatie, S Sugianto, H Humairoh, M Annas, A Wiwaha	Determinants of efficiency of Indonesian Islamic rural banks	Decision Science Letters	69
2020	A Widarjono, MB Anto, F Fakhrunnas	Financing risk in Indonesian Islamic rural banks: do financing products matter?	Journal of Asian Finance, Economics and Business	66

3.4 Authorship

Based on the number of authors for each paper, we created Figure 3 below. Three or four authors wrote the majority of the articles. Most of the selected articles had more than four authors with only a few written by one author. However, the common collaboration involves three or four authors, with more extensive collaborations being sporadic.

Figure 3: Authorship



3.5 VOSviewer Output

The 35 articles resulting from the previous screening were analyzed using VOSviewer software. Three types of visualizations were obtained notably: Network visualization, Overlay visualization, and Density visualization. The result of the network visualization is illustrated below:

Figure 4: Network visualization

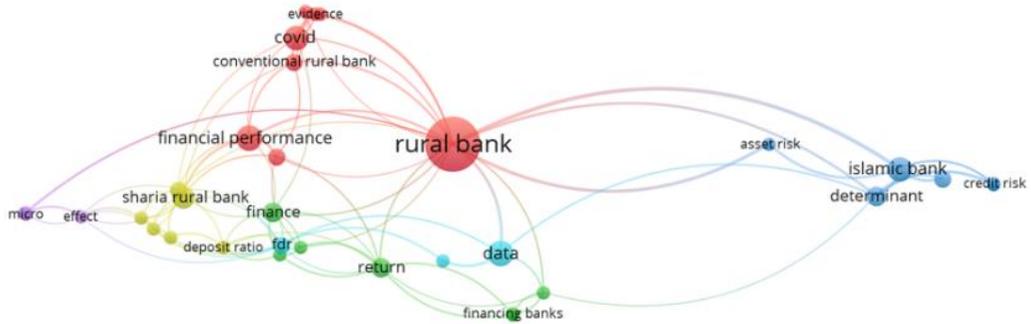


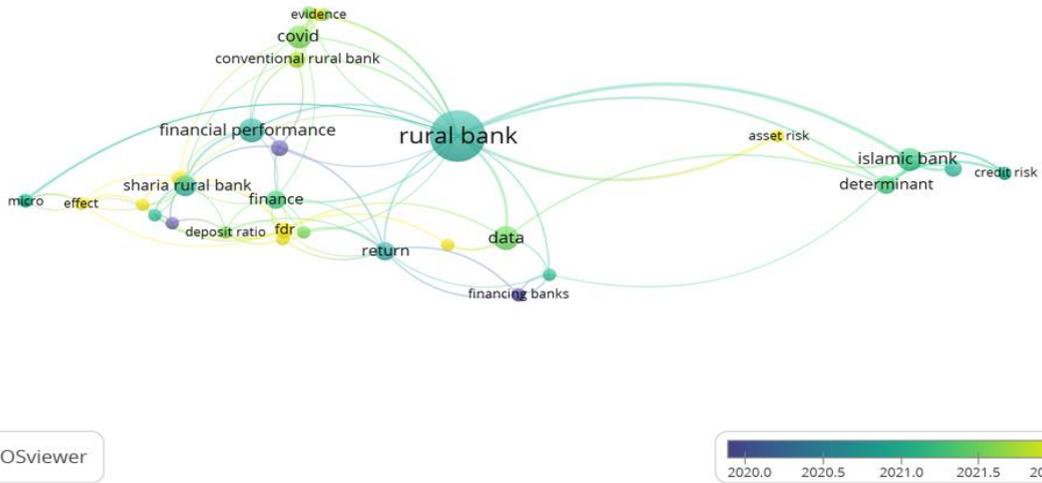
Figure 4 above maps the relationships between keywords in studies on 'NPF in Islamic rural banks in Indonesia,' where nodes represent specific keywords. The size of the nodes indicates the frequency of occurrence in the analysis; the larger the node, the more frequently the keyword appears. Lines between nodes indicate the relationships between topics, with thicker lines representing stronger connections. Based on the visualization, there are 6 clusters and 34 items related to 'NPF in Islamic rural banks in Indonesia,' as shown in Table 3:

Table 3: Keywords cluster

Clusters	Items
Cluster 1	Conventional Rural Bank, Covid, Evidence, Financial Performance, Islamic Banking, Pandemic, Rural Bank, Variable
Cluster 2	Asset, BOPO, Finance, Financing Banks, Islamic People, Research, Return
Cluster 3	Asset Risk, Bank Efficiency, Credit Risk, Determinant, Indonesian Shariah Rural Bank, Islamic Bank
Cluster 4	CAR, Deposit Ratio, MSME Financing, Shariah Rural Bank, Significant Effect
Cluster 5	Effect, Medium Enterprises Financing, Micro, Small
Cluster 6	Data, FDR, Rural Bank Sharia

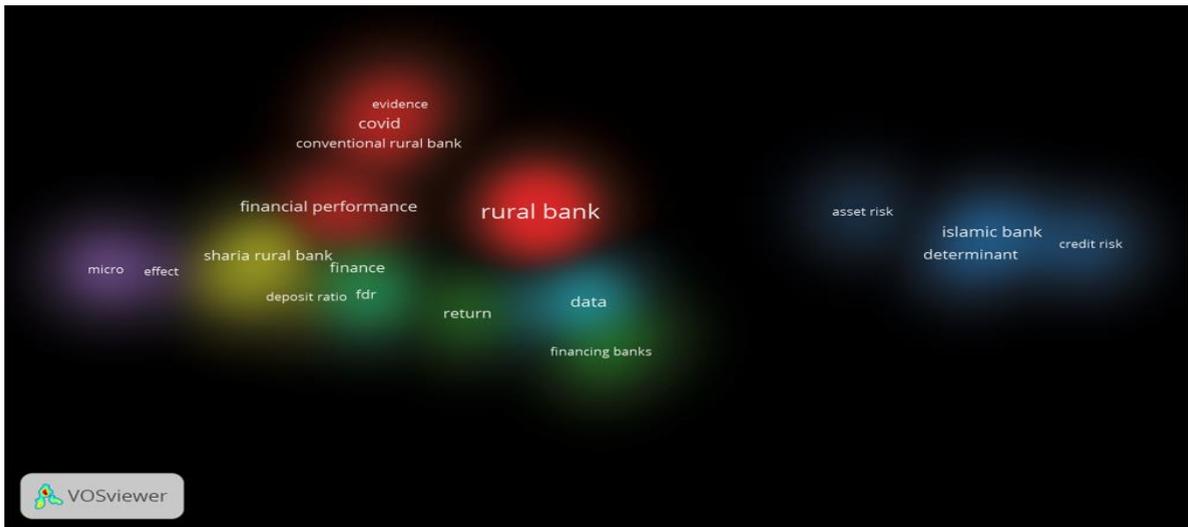
Next, regarding the overlay visualization in Figure 5. The results are similar to the previous ones but with the addition of a time dimension depicted by the color gradient on the nodes. The colors indicate the volume of research in those years. 2020 is marked in blue, while green and yellow represent the more recent years of 2021 to 2022. The most frequently occurring keywords in early 2020 were financing banks, financial ratio, and variable. From mid-2020 to early 2021, rural banks, financial performance, shariah rural banks, and return dominated the research. Then, from mid-2021 to early 2022, research on data, COVID-19, asset risk, Islamic banks, and determinants received more attention.

Figure 5. Overlay Visualization



The density analysis addresses the same issues as before but emphasizes the main clusters and the relationships between research topics. The different colors refer to groups of closely related items. The size of the nodes indicates the frequency of those topics within the dataset. 'Rural bank,' shown in the red cluster, is the main focus, and the themes closely related to it are COVID, evidence, financial performance, and conventional rural bank. Meanwhile, the keyword 'shariah rural bank,' marked in yellow, is closely related to finance, deposit ratio, FDR, return, and financing banks. Keywords in the green cluster are data, return, and financing banks. Islamic bank, determinant, credit risk, and asset risk are keywords in the blue cluster. The smallest cluster is micro and effect, marked in purple as shown in Figure 6.

Figure 6. Density Visualization



3.6 Research Methodology

The method used in the 35 selected journals is as shown in the following image:

Figure 7: Count of research methods used in the research



Figure 7 outlines that the majority of research methods used are quantitative methods, including multiple regression analysis, panel data, Non-linear Autoregressive Distributed Lag model (NARDL), Autoregressive Lag model (ARDL), Data Envelopment Analysis (DEA), Vector Autoregressive (VAR), and Wilcoxon. Only two studies employed qualitative research methods, namely field research and Analytic Network Process (ANP).

3.7 Literature Review on NPF in Islamic Rural Banks

Based on the review of 33 selected pieces of literature, which conducted research with quantitative analysis, researchers found that NPF (Non-Performing Financing) in Islamic Rural Banks in Indonesia affects 6 factors, as

- i. *ROA (Return on Asset)*
A ratio that shows the ability of the bank management to generate profits by comparing net income to the total assets held (Usamah, 2022). The higher the ROA, the more efficient the company is in utilizing its assets, which means the better the company performs (Firas et al., 2020). The NPF indicates the magnitude of poor financing, thus affecting the bank's ability to maximize profits. Therefore, the large and small levels of NPF on the IRB will affect the ROA (Santika, 2022).
- ii. *SME (Small Medium Enterprise) Financing*
The efficiency of the bank influences the size of the financing provided by IRBs to SMEs, the more efficient the IRB, the greater the availability of funds that can be provided to the SMEs (A'yun, 2020). Efficiency in the IRB is influenced by capital adequacy and the size of the credit jamming represented by the NPF. Thus, the higher the NPF, the smaller the availability of financing for SMEs (Hariyanto & Nafi'ah, 2022; Yudiansyah et al., 2022)
- iii. *Efficiency*
Low levels of NPF imply the superior quality of finance management, hence low NPFs affect greater efficiency in IRBs (Endri et al., 2022).
- iv. *The Soundness of IRB (Islamic Rural Bank)*
NPF is a risky financing, whether due to congestion, inefficiency, or non-compliance, measured by comparing the portion of the financing problem with the total financing. Therefore, the high NPF affects the soundness of the IRB (Sari & Canggih, 2021).
- v. *Banking Stability*
Research conducted by Wijana & Widnyana (2022) showed that the NPF on IRBs exceeded the limits given by Bank Indonesia before the Covid-19 pandemic hit, and worsened during the Pandemic. This has influenced the resilience of Islamic Banks including Islamic Rural Banks.

vi. *Profitability*

NPFs have a negative impact on the profitability of IRBs. The higher the problem financing rate of the IRB, the lower the profit that can be generated (Heliyani, 2020).

Conversely, NPF in Islamic Rural Banks is also influenced by the following factors:

i. *FDR (Financing to Deposit Ratio)*

The FDR reflects the level of liquidity of a bank. The FDR is measured by comparing the amount of funding and the funds of the bank's assembly (a comparison between a liquid asset and a liquid debt). A bank with high liquidity means being able to pay its entire debt when a withdrawal or maturity occurs. A high FDR indicates that the bank's fund allocation for financing is excellent but less liquid. On the contrary, if the FDR is low, the bank has good liquidity but also means many funds are unemployed. Therefore, FDR has an impact on the NPF (Arinda et al., 2022; Dermawan et al., 2021; Rahman, 2021; Priyadi et al., 2021; Rahman & Fatmawati, 2020; Setiawan & Putri, 2012; Umami, 2022).

ii. *ROA (Return on Asset)*

ROA is the ability of the company to manage assets to generate profits. The higher the ROA, the greater the profits obtained, while describing the small amount of problematic financing (Muhammad & Nugraheni, 2021; Priyadi et al., 2021; Rahman & Fatmawati, 2020; Setiawan & Putri, 2012; Umami, 2022).

iii. *IB (Indonesian Bank) Rate/Interest Rate*

The IB Rate is the interest rate set by Bank Indonesia as a benchmark for determining credit interest rates. The BI Rate serves as a reference for Islamic Rural Banks (IRB) in determining the profit-sharing ratio. If the BI Rate increases, the profit-sharing ratio must adjust to this increase in order to remain competitive with other banks. This leads to an increase in non-performing financing, as operational costs also rise (Arinda et al., 2022; Setiawan, 2021; Umami & Rani, 2021).

iv. *IPI (Industrial Production Index)*

The Industrial Production Index (IPI) is an economic indicator that reflects the real economy of a country, measured by the real output of the industry as the primary indicator, alongside supporting indicators such as the value of output, the number of workers, and productivity. If the IPI increases, it indicates an improvement in economic performance, which means that public income also increases, enabling them to fulfill their obligations. Consequently, this reduces the likelihood of Non-Performing Financing.

v. *BOD (Board of Directors) Ownership*

There is a conflict of interest between shareholders and management. However, this conflict can be aligned by having shares owned by the managers. Sohail et al. (2017) found that managerial ownership of larger shares enhances their role in the organization. Therefore, the ownership of the Board of Directors (BOD) is expected to improve the performance of Islamic Rural Banks (IRB), which is indicated by a reduction in financing risk.

vi. *BOC (Board of Commissioners) Ownership*

The Board of Commissioners (BOC) represents the shareholders and acts as an advisor in the company's management. The BOC has a positive impact on the efficiency and profitability of the company. Therefore, the BOC also influences non-performing financing (Fithria et al., 2021).

vii. *SSB (Sharia Supervisory Boards) Ownership*

The Sharia Supervisory Board (SSB) is an integral part of the structure of Islamic Rural Banks, playing a crucial role in ensuring Sharia compliance in both transactions and the issuance of Sharia-compliant products. The SSB positively influences Good Corporate Governance (GCG), which ultimately also impacts the risk of Non-Performing Financing (NPF) (Ridwansyah et al., 2021).

viii. *LLP (Loan Loss Provisions)*

Loan Loss Provision (LLP) is used to measure the quality of financing. A high LLP indicates the inability of debtors to make timely payments. Therefore, LLP has a positive relationship with Non-Performing Financing (Widarjono et al., 2020).

ix. *Income Diversification (INCDIV)*

Non-financing income represents income diversification. Income diversification is measured by the formula $1 - (FI - NFI / TI)$, where FI is financing income, NFI is non-financing income, and TI is total income. INCDIV has a negative relationship with Non-Performing Financing (Widarjono et al., 2020).

- x. *Financing Diversification (FINDIV)*
 Financing diversification describes the concentration of financing. The more financing diversification is undertaken, the lower the potential financing risk, ultimately contributing to minimizing the Non-Performing Financing (NPF) ratio in Islamic Rural Banks (Widarjono et al., 2020).
- xi. *Regional Inflation/Inflation*
 Inflation is one of the factors that influence economic conditions. Inflation reduces economic growth due to its impact on rising prices and decreasing public purchasing power. Thus, it has a direct effect on bank financing. As a result of inflation, banks increase interest rates through monetary policy, which becomes a burden for Islamic banks in providing financing. Inflation is the general and sustained increase in the prices of goods. If income does not rise as a result of inflation, the debtor's ability to make their installment payments will weaken, leading to an increase in Non-Performing Financing (Dermawan et al., 2021; Perdani et al., 2020; Priyadi et al., 2021; Setiawan, 2021).
- xii. *Economic Growth (Gross Domestic Product or Gross Domestic Regional Product)*
 Economic growth reflects the overall financial condition of society. When economic growth increases, the demand for the production of goods and services also rises (Fakhrunnas, 2020). Financing will continuously strive to support production, which impacts the risk of Non-Performing Financing (NPF) because the allocation of bank funds for financing tends to be substantial (Priyadi et al., 2021).
- xiii. *Liquidity*
 Liquidity has a significant impact on the stability of a bank. High liquidity indicates that the bank has greater financial resources, but it also increases the bank's risk. Therefore, banks with a higher deposit ratio compared to total assets will have lower liquidity risk, which in turn affects NPF (Widarjono et al., 2020).
- xiv. *PLS (Profit and Loss Sharing)*
 What PLS means here is the portion of the PLS financing compared to the entire financing (Widarjono et al., 2020) The larger the PLS in the IRB, the higher the risk of NPF, because PLS is closely related to moral hazard and asymmetric information (Azmat et al., 2015).
- xv. *Market Power (Market Structure)*
 Market structure, as proxied by the Lerner index, is related to bank profitability and stability. Therefore, the Lerner index is suspected to have a relationship with NPF in banking (Widarjono et al., 2022).
- xvi. *Islamic Bank (IB) size*
 Apart from market power, the size of Islamic Banks (IB), measured by total assets, also affects financing risk (Widarjono et al., 2022; Widarjono & Rudatin, 2021).
- xvii. *Equity*
 Equity represents the availability of funds that a bank has to provide financing. The larger the capital, the greater the financing that can be offered by the bank. However, the larger the capital, the higher the potential financing risk that Islamic Rural Banks (IRBs) may face (Widarjono et al., 2022).
- xviii. *CAR (Capital Adequacy Ratio)*
 In addition to equity, many studies indicate that CAR is related to financing risk. CAR is the ratio of capital to risk-weighted assets, in accordance with government regulations (Arinda et al., 2022; Muhammad et al., 2020; Perdani et al., 2020; Priyadi et al., 2021; Rahman & Fatmawati, 2020; Setiawan, 2021; Widarjono et al., 2020; Widarjono & Rudatin, 2021).
- xix. *TPF (Third-Party Funds)*
 The amount of third-party funds collected by the bank affects its ability to provide financing. The larger the financing provided, the greater the potential financing risk that may arise (Yasin & Muhammad, 2020).
- xx. *Efficiency (Cost to Income Ratio/Operating Expense over Operating Revenue/Operational Efficiency Ratio)*
 Operating Expense over Revenue indicates that the company's efficiency is low, which in turn affects the risk of financing (Kadir et al., 2022; Perdani et al., 2020; Priyadi et al., 2021; Rahman & Fatmawati, 2020; Widarjono et al., 2020; Widarjono & Rudatin, 2021).
- xxi. *Growth of Financing*
 Financing growth indicates an increased ability of the bank to provide funds to borrowers. However, a high level of financing presents a greater credit risk challenge for the bank (Widarjono & Rudatin, 2021).

xxii. Covid-19

The research conducted by Rahman (2021) shows a difference in the NPF values before and after the Covid-19 pandemic. This indicates that the Covid-19 outbreak had an impact on NPF.

Meanwhile, from the other two studies that used qualitative research methods, it was found that financing risk is one of the most common risks faced by Islamic Microfinance. However, the strategies used to manage this risk lack standardization (Mutamimah et al., 2022). It can also be concluded that the approaches to handling these risks are divided into two types: litigation and non-litigation (Yasin & Muhammad, 2020).

4. Discussions

From the three visualizations above, it can be concluded that general studies on rural banks still dominate research on NPF in Islamic rural banks and are significantly related to the impact of COVID-19 and financial performance, both conventional and shariah. Shariah rural banks are closely associated with financing risks and other risks. The clear separation between clusters indicates that while there is interaction between topics, each tends to be studied specifically. Based on the time dimension, topics related to COVID-19 appear more prominent between 2021-2022.

Therefore, future research should not only address the short-term impact of COVID-19 but also its long-term effects. There is a need for studies on the technology that can be applied to Islamic rural banks, as well as empirical research on risk management, which has not been extensively discussed. Additionally, how Islamic rural banks adopt sustainable practices also requires further investigation.

Furthermore, based on the authorship structure and collaboration, most of the studies were conducted in cooperation with authors from Indonesia. Therefore, for future research, collaboration with authors from other countries is still needed, especially with researchers from countries that are also developing Islamic Microfinance, such as Islamic Rural Banks. This would allow for research to be conducted not only in Indonesia but also by comparing several countries.

As for the research methods, most studies were conducted using quantitative methods. Therefore, future research could be developed using other methods, such as mixed methods or qualitative methods, which are characterized by a deeper examination of the issues.

Based on the literature review, it can be seen that most studies investigate the internal and external factors affecting NPF, as illustrated in Table 4:

Table 4: Internal and external factors of NPF

Total	Internal Factors	External Factors
1	FDR	IB Rate/Interest Rate
2	ROA	IPI
3	Ownership of BOD/BOC/SSB	Inflation
4	LLP	GDP/GDRP
5	INCDIV	Market Structure
6	FINDIV	Covid-19
7	Liquidity	
8	PLS	
9	IB Size	
10	Equity	
11	CAR	
12	TPF	
13	CIR/OER/BOPO	
14	Growth of Financing	

Based on Table 4, most of the factors causing NPF in IRBs are related to factors that are all connected to the IRBs themselves. Therefore, it is essential to develop research that links other factors related to customers, who are the primary contributors to NPF, such as demographics, customer gender, occupation, age, and even family conditions, to determine whether these factors influence the financing risk in IRBs.

5. Conclusion

This study offers a bibliometric analysis and literature review of NPF in Indonesian IRBs, identifying publication trends, key research topics, and methodologies. While valuable insights were gained, limitations include reliance on a single database and possibility of subjective bias during article selection. Future research should explore additional databases, employ mixed methods, and address customer-related factors influencing NPF. Enhanced international collaboration could also broaden the scope of comparative studies on Islamic microfinance.

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