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Financial Performance and Financial Distress: The Mediating Role of Credit Risk in Indonesian People's Economy Banks (2020–2024)

Indra Adludin Jafar[1], Anis Chariri[2]

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Abstract

This study examines the effects of capital adequacy (Capital Adequacy Ratio/CAR), liquidity policy (Loan-to-Deposit Ratio/LDR), and operational efficiency (Operating Expenses to Operating Income/BOPO) on financial distress, with credit risk measured by Non-Performing Loans (NPL) as an intervening variable. Financial distress is proxied using the Modified Altman Z''-Score. Grounded in Agency Theory and Risk Management Theory, the study employs a quantitative approach using secondary data from Indonesian People's Economic Banks (BPRs) published by the Financial Services Authority (OJK) during 2020–2024. Using purposive sampling, the study analyzes 5,975 bank-year observations from 1,206 BPRs through panel data regression and mediation analysis. The findings show that CAR has a positive and significant effect on the Modified Altman Z''-Score, indicating stronger financial resilience, while LDR has no significant effect. BOPO negatively affects the Modified Altman Z''-Score, suggesting that lower operational efficiency increases the likelihood of financial distress. CAR does not significantly influence NPL, whereas LDR and BOPO positively affect credit risk. NPL significantly influences financial distress and partially mediates the relationships between financial performance indicators and financial distress. These findings highlight the importance of maintaining adequate capital, improving operational efficiency, and strengthening credit risk management to enhance the financial stability of BPRs. The study contributes to the banking risk management literature by explaining the mechanism through which financial performance affects financial distress and provides practical implications for bank managers and regulators in strengthening the resilience of Indonesia's rural banking sector.

[1] *Universitas Diponegoro Semarang, Indonesia. Email:* adludin@students.undip.ac.id
[2] *Universitas Diponegoro Semarang, Indonesia*

1. Introduction

Banks play a vital role in economic development by mobilizing public funds and channeling them into productive investments. Through this intermediation function, banks support investment, employment, and sustainable economic growth, making banking stability essential to the resilience of the financial system (Mishkin, 2022; Saunders & Cornett, 2022).

Indonesia's banking industry consists of commercial banks and People's Economic Banks (Bank Perekonomian Rakyat/BPR), formerly known as Rural Banks. Under Law No. 4 of 2023 on Financial Sector Development and Strengthening (P2SK Law), the change in nomenclature reflects the government's commitment to strengthening BPRs as providers of inclusive financial services, particularly for micro, small, and medium-sized enterprises (MSMEs). Because BPRs primarily serve local communities, their financial stability is closely linked to regional economic development and financial inclusion.

The COVID-19 pandemic substantially increased the challenges faced by BPRs. Economic contraction weakened borrowers' repayment capacity, leading to higher credit risk, while government restructuring programs and recovery policies reshaped banking operations. Consequently, the period from 2020 to 2024 represents a unique setting encompassing both crisis and recovery, during which banks were required to strengthen capital, maintain liquidity, improve operational efficiency, and manage credit risk effectively.

Maintaining financial health is essential for banking sustainability because persistent deterioration may result in financial distress, characterized by declining profitability, weakened solvency, and increasing inability to meet financial obligations. Early detection of financial distress enables managers and regulators to implement corrective actions before financial problems escalate into institutional failure (Platt & Platt, 2002; Altman et al., 2020).

This study measures financial distress using the Modified Altman Z''-Score. Unlike Indonesia's Risk-Based Bank Rating (RGEC) framework, which is designed for supervisory assessment, the Modified Altman Z''-Score provides a continuous quantitative measure suitable for econometric analysis. Accordingly, it enables empirical examination of the determinants of financial distress while avoiding the multidimensional nature of regulatory bank ratings.

The study is grounded in Agency Theory and Risk Management Theory. Agency Theory suggests that managers are responsible for safeguarding shareholders' interests through effective financial decision-making, whereas Risk Management Theory emphasizes that decisions regarding capital, liquidity, operational efficiency, and lending directly influence a bank's risk profile and long-term financial stability.

Three financial performance indicators are examined. Capital adequacy, measured by the Capital Adequacy Ratio (CAR), reflects a bank's capacity to absorb unexpected losses. Liquidity policy, represented by the Loan-to-Deposit Ratio (LDR), indicates the effectiveness of fund allocation through lending while balancing liquidity risk. Operational efficiency, measured by the Operating Expenses to Operating Income ratio (BOPO), evaluates management's ability to control operating costs. Inefficient operations may reduce profitability and weaken financial resilience.

This study further proposes that these financial performance indicators influence financial distress indirectly through credit risk. Credit risk, proxied by the Non-Performing Loan (NPL) ratio, represents the principal risk arising from lending activities. Rising NPLs reduce income, increase impairment provisions, weaken profitability, and ultimately heighten the likelihood of financial distress. Accordingly, NPL is expected to mediate the relationship between financial performance and financial distress.

Although numerous studies have investigated the determinants of financial distress, their findings remain inconsistent. Previous research reports conflicting evidence regarding the effects of CAR, LDR, and BOPO on financial distress, reflecting differences in research settings, economic conditions, sample characteristics, and analytical methods. Moreover, most prior studies focus on commercial banks, while empirical evidence on Indonesian BPRs remains limited, particularly during the pandemic and post-pandemic recovery period.

This study addresses three research gaps. First, it focuses on BPRs, whose business models and risk characteristics differ substantially from those of commercial banks. Second, it investigates the 2020–2024 period, capturing both the COVID-19 crisis and subsequent economic recovery. Third, it extends previous studies by incorporating NPL as an intervening variable, thereby explaining the mechanism through which financial performance affects financial distress rather than examining only direct relationships.

Methodologically, the study employs panel data regression using a Fixed Effects Model with White Cross-Section Robust Standard Errors to produce consistent and robust parameter estimates. By integrating financial performance, credit risk, and financial distress into a unified analytical framework, this study contributes to the banking risk management literature while providing practical insights for bank managers and regulators seeking to strengthen the resilience and sustainability of Indonesia's People's Economic Banks.

2. Methods

The study employs a quantitative research approach using panel data regression analysis. The dataset consists of secondary quantitative data obtained from the audited annual financial reports of Indonesian People's Economic Banks (Bank Perekonomian Rakyat/BPR) covering the period 2020–2024. These reports were collected primarily from the official website of the Indonesian Financial Services Authority (Otoritas Jasa Keuangan/OJK), supplemented by the official websites of individual BPRs to ensure data completeness and consistency.

Financial distress serves as the dependent variable and is measured using the Modified Altman Z''-Score, a widely recognized indicator for assessing the likelihood of financial distress and business failure. The independent variables represent key dimensions of bank financial performance. Capital adequacy is measured by the Capital Adequacy Ratio (CAR), which reflects a bank's capacity to absorb unexpected losses and maintain solvency. Liquidity policy is proxied by the Loan-to-Deposit Ratio (LDR), which evaluates the effectiveness of fund allocation through lending activities while maintaining adequate liquidity. Operational efficiency is measured by the Operating Expenses to Operating Income (BOPO) ratio, which indicates management's ability to control operating costs relative to operating income. In addition, credit risk, measured by the Non-Performing Loan (NPL) ratio, is incorporated as an intervening variable to examine its mediating role in the relationship between financial performance and financial distress.

The population comprises all People's Economic Banks (BPRs) operating in Indonesia during the 2020–2024 observation period. According to Sugiyono (2001), a population is the complete set of objects or subjects possessing specific characteristics determined by the researcher for investigation and from which conclusions are drawn. BPRs were selected as the study population because they represent an essential component of Indonesia's financial system. As community-based financial institutions, BPRs play a strategic role in promoting financial inclusion, mobilizing local savings, and providing credit to micro, small, and medium-sized enterprises (MSMEs), thereby contributing significantly to regional and national economic development. Examining the financial performance and financial stability of BPRs is therefore important for understanding the resilience of Indonesia's rural banking sector, particularly during the post-pandemic economic recovery period.

3. Results and Discussion

The Effect of Capital Adequacy Ratio (CAR) on Financial Distress

The results of the first hypothesis test indicate that the Capital Adequacy Ratio (CAR) has a positive and statistically significant effect on financial distress, as measured by the Modified Altman Z''-Score. The Fixed Effects Model (FEM) with White Cross-Section Robust Standard Errors produced a regression coefficient of **0.024819** with a probability value of **0.0001**, which is below the 5% significance level. Therefore, **Hypothesis 1 (H1)**, which proposes that capital adequacy positively affects financial health as reflected by the Modified Altman Z''-Score, is supported.

The positive regression coefficient indicates that an increase in CAR is associated with a higher Modified Altman Z''-Score. Because a higher Z''-Score reflects a healthier financial condition and a lower probability of financial distress, this finding suggests that stronger capital adequacy enhances the financial resilience of People's Economic Banks (BPRs). Adequate capital enables banks to absorb unexpected losses, maintain operational stability, comply with regulatory capital requirements, and support sustainable business operations. Furthermore, a strong capital position provides management with greater flexibility to pursue prudent business expansion while maintaining financial soundness.

This finding is consistent with **Agency Theory** proposed by **Jensen and Meckling**, which argues that managers, acting as agents, are responsible for managing corporate resources in the best interests of shareholders and other stakeholders. Maintaining adequate capital reflects prudent managerial decision-making because it strengthens the bank's ability to withstand financial shocks while safeguarding the interests of depositors, creditors, investors, and regulators. Conversely, insufficient capital weakens a bank's capacity to absorb risk, thereby increasing concerns regarding its financial stability and long-term viability.

The results also support **Risk Management Theory**, which identifies capital as one of the primary mechanisms for mitigating banking risk. According to **Saunders and Cornett (2022)**, capital functions as a financial buffer that absorbs losses arising from credit, market, liquidity, and operational risks. Banks with stronger capital adequacy are therefore better positioned to withstand unexpected losses without disrupting normal operations. Consequently, higher CAR reflects a stronger risk-bearing capacity, thereby reducing the likelihood of financial distress.

These findings are consistent with previous studies reporting that capital adequacy plays a critical role in strengthening banking stability and reducing the probability of financial distress. A well-capitalized bank possesses greater capacity to absorb potential losses arising from operational and credit risks, thereby enhancing its financial resilience. This evidence reinforces the importance of CAR as a key indicator of bank soundness and as a strategic instrument for maintaining the long-term sustainability of banking institutions.

From a practical perspective, the findings suggest that BPR management should prioritize maintaining adequate capital not only to satisfy regulatory requirements but also as part of a long-term risk management strategy. Strengthening the capital base enhances resilience during periods of economic uncertainty, increases public confidence, and supports sustainable financial performance. Therefore, effective capital management represents a fundamental strategy for minimizing the risk of financial distress in Indonesian People's Economic Banks.

The Effect of Liquidity Policy (LDR) on Financial Distress

The results of the second hypothesis test indicate that liquidity policy, measured by the Loan-to-Deposit Ratio (LDR), has a positive but statistically insignificant effect on financial distress, as measured by the Modified Altman Z''-Score. The estimation results obtained from the Fixed Effects Model (FEM) with White Cross-Section Robust Standard Errors show a regression coefficient of **0.000423** with a probability value of **0.1320**, which exceeds the 5% significance

level. Accordingly, **Hypothesis 2 (H2)**, which proposes that liquidity policy positively affects financial distress, is not supported.

Although the regression coefficient is positive, the relationship is statistically insignificant. This finding indicates that variations in LDR did not significantly influence the financial condition of BPRs during the 2020–2024 observation period. In other words, the proportion of third-party funds allocated to lending activities was not a primary determinant of financial health among the sampled banks. The results suggest that the financial condition of BPRs is more strongly influenced by other factors, including capital adequacy, operational efficiency, asset quality, profitability, and the overall effectiveness of risk management.

From the perspective of **Agency Theory** proposed by **Jensen and Meckling**, managers are entrusted with balancing profitability and liquidity while protecting the interests of shareholders and depositors. Lending decisions represent strategic managerial choices that must optimize returns without exposing the bank to excessive liquidity or credit risk. The insignificant relationship observed in this study suggests that BPR management generally succeeded in maintaining an appropriate balance between liquidity and lending activities during the study period, preventing liquidity policy from becoming a direct determinant of financial distress.

This finding can also be explained by **Risk Management Theory**, which emphasizes that liquidity risk should be managed in conjunction with other banking risks, particularly credit, operational, and capital risks (**Saunders & Cornett, 2022**). Within an integrated risk management framework, liquidity risk rarely leads directly to financial distress. Instead, its impact depends largely on the effectiveness of the bank's overall risk management system. Banks may maintain relatively high LDR levels without experiencing financial deterioration provided they preserve adequate capital, maintain high-quality loan portfolios, and implement effective risk management practices. Consequently, the influence of liquidity policy on financial distress is likely to occur indirectly through other risk transmission mechanisms, particularly credit risk.

The findings do not support the proposed hypothesis that a higher LDR improves financial health as reflected in the Modified Altman Z''-Score. One possible explanation lies in the distinctive characteristics of BPRs compared with commercial banks. Increased lending does not necessarily strengthen financial stability unless accompanied by high credit quality and prudent lending practices. Moreover, the 2020–2024 study period coincided with the post-pandemic economic recovery, during which credit restructuring policies, enhanced regulatory supervision, and changing borrower behavior may have weakened the direct relationship between liquidity policy and financial distress.

From a practical perspective, the findings indicate that liquidity management remains an essential component of banking operations. However, changes in the LDR alone cannot adequately explain variations in financial distress. BPR management should therefore integrate liquidity management with capital strengthening, improvements in credit quality, operational efficiency, and comprehensive risk management. Such an integrated approach is essential for maintaining financial stability and ensuring the long-term sustainability of People's Economic Banks.

The Effect of Operational Efficiency (BOPO) on Financial Distress

The results of the third hypothesis test indicate that operational efficiency, measured by the Operating Expenses to Operating Income (BOPO) ratio, has a negative and statistically significant effect on financial distress, as measured by the Modified Altman Z''-Score. Based on the

estimation results obtained from the Fixed Effects Model (FEM) with White Cross-Section Robust Standard Errors, the regression coefficient is **−0.011507** with a probability value of **0.0004**, which is below the 5% significance level. Therefore, **Hypothesis 3 (H3)**, which proposes that operational efficiency has a negative effect on financial distress, is supported.

The negative regression coefficient indicates that an increase in the BOPO ratio is associated with a decline in the Modified Altman Z''-Score. Because a higher BOPO reflects lower operational efficiency, this finding suggests that inefficient operations increase the likelihood of financial distress among People's Economic Banks (BPRs). Higher operating expenses relative to operating income reduce profitability, weaken financial resilience, and ultimately increase vulnerability to financial distress. These results demonstrate that operational efficiency is a critical determinant of the financial health of BPRs.

This finding is consistent with **Agency Theory** proposed by **Jensen and Meckling**, which emphasizes that managers, acting as agents, are responsible for utilizing corporate resources efficiently to maximize shareholder value. The BOPO ratio reflects management's ability to control operating costs while optimizing operating income. A persistently high BOPO indicates inefficient resource allocation, weak cost control, and declining profitability, all of which may intensify agency conflicts by suggesting that management has failed to maximize organizational performance. Conversely, maintaining a low BOPO ratio reflects effective managerial performance, strengthens financial stability, and reduces the likelihood of financial distress.

The findings also support **Risk Management Theory**, which highlights the importance of operational efficiency in maintaining organizational resilience. According to **Saunders and Cornett (2022)**, effective risk management extends beyond managing credit and liquidity risk to include the efficient management of operational processes through sound internal controls, cost discipline, and continuous process improvement. High BOPO ratios indicate operational inefficiencies that weaken a bank's capacity to manage operational risk and respond effectively to other financial risks. Consequently, deteriorating operational efficiency undermines financial resilience and increases the probability of financial distress.

The results are consistent with the research hypothesis and previous studies discussed in Chapter II, which identify BOPO as an important indicator of banking efficiency. When operating expenses increase more rapidly than operating income, profitability declines, financial flexibility is reduced, and the bank becomes more vulnerable to financial distress. These findings reinforce the importance of operational efficiency as a key driver of financial sustainability within the rural banking sector.

From a practical perspective, the findings emphasize the importance of strengthening operational efficiency as a strategic priority for BPR management. Cost control initiatives should be supported by process optimization, greater utilization of information technology, enhanced employee productivity, and stronger internal control systems. Improving operational efficiency will strengthen profitability, improve financial resilience, increase the Modified Altman Z''-Score, and ultimately reduce the risk of financial distress.

The Effect of Capital Adequacy Ratio (CAR) on Credit Risk

The results of the fourth hypothesis test indicate that the Capital Adequacy Ratio (CAR) has a negative but statistically insignificant effect on credit risk, measured by the Non-Performing Loan (NPL) ratio. The estimation results obtained from the Fixed Effects Model (FEM) with White Cross-Section Robust Standard Errors produce a regression coefficient of **−0.004249** with a probability value of **0.6070**, which exceeds the 5% significance level. Accordingly, **Hypothesis 4 (H4)**, which proposes that capital adequacy negatively affects credit risk, is not supported.

Although the regression coefficient is negative, the relationship is not statistically significant. This finding indicates that higher capital adequacy was not associated with a meaningful reduction in non-performing loans among BPRs during the 2020–2024 study period. While stronger capital positions may improve a bank's overall financial resilience, they do not

necessarily reduce credit risk directly. Instead, the level of non-performing loans appears to be more strongly influenced by factors such as the quality of credit appraisal, borrowers' repayment capacity, macroeconomic conditions, loan monitoring practices, and the overall effectiveness of credit risk management.

From the perspective of **Agency Theory** proposed by **Jensen and Meckling**, management is entrusted with utilizing shareholders' capital prudently while minimizing business risks, including credit risk. Adequate capital provides management with greater flexibility to establish loss provisions, strengthen internal control systems, and absorb potential losses arising from loan defaults. However, the findings suggest that capital adequacy alone does not determine the quality of a bank's loan portfolio. Rather, effective governance, prudent lending policies, and sound credit monitoring play a more decisive role in controlling non-performing loans.

The results are also consistent with **Risk Management Theory**, which emphasizes that credit risk should be managed through a continuous process of risk identification, measurement, monitoring, and control. According to **Saunders and Cornett (2022)**, the effectiveness of credit risk management depends primarily on the quality of lending policies and risk management practices rather than on the amount of regulatory capital held by the bank. Capital functions primarily as a financial buffer that absorbs losses after credit risk has materialized, whereas preventing the emergence of non-performing loans requires effective credit screening, prudent lending standards, robust internal controls, and continuous borrower monitoring. Consequently, adequate capital alone cannot guarantee lower credit risk.

Although the direction of the estimated relationship is consistent with the proposed hypothesis, the insignificant result indicates that increases in CAR were not followed by statistically significant reductions in NPLs. This finding may reflect the unique characteristics of BPRs, where credit risk remains highly dependent on borrower quality and lending practices despite relatively strong capital positions. In addition, the 2020–2024 observation period coincided with the post-pandemic economic recovery, during which credit restructuring programs, borrowers' recovery capacity, and changing economic conditions substantially influenced loan quality, thereby weakening the direct relationship between CAR and NPL.

From a practical perspective, the findings suggest that strengthening capital remains essential for maintaining financial resilience; however, capital enhancement alone is insufficient to reduce credit risk. BPR management should complement capital strengthening with prudent lending policies, rigorous creditworthiness assessments, effective loan monitoring systems, and timely resolution of non-performing loans. Accordingly, sustainable credit risk management depends not only on adequate capitalization but also on strong governance and effective risk management practices.

Overall, the findings indicate that capital adequacy functions primarily as a financial buffer against potential losses rather than as a direct determinant of credit quality. Therefore, efforts to increase CAR should be accompanied by continuous improvements in credit management practices to achieve meaningful reductions in non-performing loans within Indonesia's People's Economic Banks.

The Effect of Liquidity Policy (LDR) on Credit Risk

The results of the fifth hypothesis test indicate that liquidity policy, measured by the Loan-to-Deposit Ratio (LDR), has a positive and statistically significant effect on credit risk, proxied by the Non-Performing Loan (NPL) ratio. Based on the Fixed Effects Model (FEM) with White Cross-

Section Robust Standard Errors, the estimated regression coefficient is **0.019387** with a probability value of **0.0422**, which is below the 5% significance level. Accordingly, **Hypothesis 5 (H5)**, which proposes that liquidity policy positively affects credit risk, is supported.

The positive regression coefficient indicates that an increase in the LDR is associated with a higher NPL ratio. This finding suggests that a greater proportion of third-party funds allocated to lending increases the credit risk faced by People's Economic Banks (BPRs). Although expanding credit portfolios may increase interest income and profitability, aggressive lending can also elevate the likelihood of loan defaults if it is not accompanied by rigorous credit assessment, continuous borrower monitoring, and effective risk control procedures. Therefore, the results demonstrate that excessive credit expansion may adversely affect asset quality and increase credit risk.

This finding is consistent with **Agency Theory** proposed by **Jensen and Meckling**, which argues that managers, acting as agents, are responsible for balancing profitability objectives with prudent risk management. Lending decisions involve strategic trade-offs because management is expected to maximize returns while safeguarding the interests of shareholders, depositors, and other stakeholders. Excessive credit expansion may generate higher short-term earnings; however, without adequate credit risk management, it can also increase the incidence of non-performing loans. The significant positive relationship observed in this study indicates that managerial decisions regarding liquidity allocation have direct implications for the level of credit risk borne by BPRs.

The findings are also supported by **Risk Management Theory**, which emphasizes the close relationship between liquidity risk and credit risk within banking operations. According to **Saunders and Cornett (2022)**, credit expansion should always be accompanied by effective risk management practices to ensure that increases in lending volume do not compromise loan quality. Effective credit risk management requires systematic credit evaluation, ongoing borrower monitoring, and appropriate internal control mechanisms. Consequently, an increase in the LDR that is not supported by sound lending practices is likely to increase the proportion of non-performing loans.

These findings are consistent with the research hypothesis and previous empirical studies discussed in Chapter II, which report that higher LDR values tend to increase credit risk. As banks allocate a larger share of deposits to lending activities, the probability of borrower default also increases unless prudent lending standards are consistently applied. Therefore, liquidity policy should be implemented in conjunction with effective credit risk management to ensure that credit expansion does not compromise asset quality.

From a practical perspective, the findings suggest that BPR management should maintain an appropriate balance between business growth and credit quality. Lending targets should be aligned with the bank's capacity to conduct comprehensive creditworthiness assessments, monitor borrowers effectively, and manage credit risk on a continuous basis. Furthermore, strict adherence to prudential banking principles throughout the lending process is essential for minimizing non-performing loans and maintaining financial stability.

Overall, the results confirm that liquidity policy is an important determinant of credit risk in Indonesian People's Economic Banks. While credit expansion contributes to business growth, it must be supported by effective risk management practices to preserve loan quality and ensure the long-term sustainability of banking operations.

The Effect of Operational Efficiency (BOPO) on Credit Risk

The results of the sixth hypothesis test indicate that operational efficiency, measured by the Operating Expenses to Operating Income (BOPO) ratio, has a positive and statistically significant effect on credit risk, proxied by the Non-Performing Loan (NPL) ratio. The estimation results obtained from the Fixed Effects Model (FEM) with White Cross-Section Robust Standard Errors produce a regression coefficient of **0.152410** with a probability value of **0.0051**, which is below

the 5% significance level. Therefore, **Hypothesis 6 (H6)**, which proposes that operational efficiency positively affects credit risk, is supported.

The positive regression coefficient indicates that an increase in the BOPO ratio is associated with a higher NPL ratio. Because a higher BOPO reflects lower operational efficiency, the findings suggest that operational inefficiency significantly increases the level of credit risk faced by BPRs. Inefficient operations reduce management's ability to administer lending activities effectively, including credit evaluation, borrower supervision, loan monitoring, and recovery of non-performing loans. Consequently, banks with poor operational efficiency are more vulnerable to deterioration in loan quality.

This finding is consistent with **Agency Theory** proposed by **Jensen and Meckling**, which emphasizes management's responsibility to utilize organizational resources efficiently while protecting shareholders' interests. A persistently high BOPO ratio reflects ineffective operational management and may indicate weak internal controls, inefficient business processes, or inadequate managerial oversight. Such conditions increase agency costs by suggesting that management has not allocated resources optimally. Furthermore, operational inefficiency may reduce the effectiveness of credit appraisal, borrower monitoring, and loan recovery activities, thereby increasing the incidence of non-performing loans.

The findings also support **Risk Management Theory**, which argues that the effectiveness of banking risk management depends heavily on the quality of operational processes. According to **Saunders and Cornett (2022)**, risk management encompasses not only the control of financial risks but also the establishment of effective operational systems through strong internal controls, efficient resource utilization, and continuous supervision. High BOPO ratios indicate operational weaknesses that may reduce the bank's ability to identify, monitor, and mitigate credit risk effectively. Consequently, declining operational efficiency contributes to higher credit risk through weaker implementation of credit risk management practices.

The results are consistent with the research hypothesis and previous studies discussed in Chapter II, which identify operational efficiency as an important determinant of credit quality. When operating expenses increase disproportionately relative to operating income, a larger share of organizational resources is devoted to covering operating costs rather than strengthening core banking functions, including credit analysis, monitoring, and loan collection. As a result, the quality of loan portfolio management deteriorates, leading to higher levels of non-performing loans.

From a practical perspective, the findings underscore the importance of improving operational efficiency as part of an integrated credit risk management strategy. BPR management should strengthen cost control mechanisms, enhance employee productivity, optimize the use of information technology, and improve internal monitoring systems. Greater operational efficiency will enable banks to manage their loan portfolios more effectively, improve asset quality, and reduce the incidence of non-performing loans.

Overall, the findings confirm that operational efficiency is a critical determinant of credit risk in Indonesian People's Economic Banks. Banks with higher operational efficiency are better positioned to maintain loan quality, strengthen financial performance, and support the long-term sustainability of their banking operations.

The Effect of Credit Risk (NPL) on Financial Distress

The results of the seventh hypothesis test indicate that credit risk, measured by the Non-Performing Loan (NPL) ratio, has a positive and statistically significant effect on financial distress, proxied by the Modified Altman Z''-Score. Based on the estimation results obtained from the Fixed Effects Model (FEM) with White Cross-Section Robust Standard Errors, the regression coefficient is **0.007041** with a probability value of **0.0007**, which is below the 5% significance level. Although the effect of NPL on financial distress is statistically significant, the direction of the relationship is contrary to the proposed hypothesis, which predicted a negative relationship. Therefore, **Hypothesis 7 (H7)** is rejected.

The positive regression coefficient indicates that an increase in the NPL ratio is associated with a higher Modified Altman Z''-Score. Since a higher Z''-Score reflects a healthier financial condition and a lower likelihood of financial distress, this finding suggests that, during the 2020–2024 observation period, an increase in credit risk did not necessarily weaken the financial condition of People's Economic Banks (BPRs). In other words, BPRs with relatively higher NPL ratios were still able to maintain financial stability, indicating that credit risk alone was not sufficient to trigger financial distress.

From the perspective of **Agency Theory** proposed by **Jensen and Meckling**, management is responsible for safeguarding the interests of shareholders and other stakeholders through prudent credit risk management. Conceptually, higher NPL ratios reflect increased credit risk resulting from lending decisions and may signal weaknesses in credit portfolio management. However, the findings suggest that BPR management was able to mitigate the adverse consequences of higher non-performing loans by maintaining adequate capital, establishing sufficient loan loss provisions, and implementing effective risk management practices. Consequently, the negative impact of rising NPLs on the banks' overall financial condition was successfully contained.

The findings can also be explained by **Risk Management Theory**, which emphasizes that the consequences of credit risk depend not only on the magnitude of non-performing loans but also on a bank's capacity to manage and absorb those risks effectively. According to **Saunders and Cornett (2022)**, successful risk management is reflected in the institution's ability to identify, measure, monitor, control, and absorb the effects of risk while maintaining financial stability. Therefore, a higher NPL ratio does not necessarily lead to financial distress if the bank possesses adequate capital, maintains sufficient reserves, and implements an effective credit risk management framework.

The results differ from both the proposed hypothesis and the primary studies reviewed in Chapter II. One possible explanation is the unique context of the 2020–2024 study period, which encompassed the post-pandemic economic recovery. During this period, many BPRs implemented loan restructuring programs, strengthened capital positions, and increased provisions for expected credit losses to preserve financial stability. As a result, some banks were able to maintain relatively high Modified Altman Z''-Scores despite experiencing increases in non-performing loans. Furthermore, because the Modified Altman Z''-Score is a composite financial indicator incorporating several dimensions of financial performance, changes in NPLs alone may not immediately translate into financial distress.

From a practical perspective, the findings indicate that the NPL ratio should not be used as the sole indicator for assessing the financial condition of rural banks. Instead, credit risk should be evaluated together with other key indicators, including capital adequacy, profitability, operational efficiency, asset quality, and the effectiveness of enterprise risk management. Accordingly, managerial decisions aimed at maintaining bank stability should adopt a comprehensive approach rather than focusing exclusively on reducing non-performing loans.

Overall, the findings suggest that the relationship between credit risk and financial distress in Indonesian People's Economic Banks differs from conventional theoretical expectations. The financial condition of BPRs appears to be determined by the combined effects of multiple financial and managerial factors, indicating that an increase in credit risk does not necessarily result in a deterioration of financial health.

The Mediating Role of Credit Risk (NPL) in the Relationship between Capital Adequacy Ratio (CAR) and Financial Distress

The results of the eighth hypothesis test indicate that credit risk, measured by the Non-Performing Loan (NPL) ratio, does not mediate the relationship between the Capital Adequacy Ratio (CAR) and financial distress, as measured by the Modified Altman Z''-Score. The Sobel test produced a test statistic of **−0.556441**, which is lower than the critical value of **1.96** at the 5% significance level. Accordingly, the indirect effect of CAR on financial distress through NPL is not statistically significant. Therefore, **Hypothesis 8 (H8)** is rejected.

The findings indicate that capital adequacy influences the financial condition of People's Economic Banks primarily through a direct mechanism rather than indirectly through changes in credit risk. This conclusion is consistent with the results of **Hypothesis 1**, which demonstrate that CAR has a positive and statistically significant effect on the Modified Altman Z''-Score, but differs from the results of **Hypothesis 4**, which reveal that CAR has no significant effect on the NPL ratio. Because the relationship between CAR and NPL is statistically insignificant, the indirect pathway through credit risk is insufficient to explain the effect of capital adequacy on financial distress.

This finding is consistent with **Agency Theory** proposed by **Jensen and Meckling**, which considers capital adequacy an important governance mechanism for protecting the interests of shareholders and other stakeholders. Adequate capital enables management to absorb unexpected losses, maintain financial stability, and comply with prudential banking regulations. The results of this study suggest that the contribution of capital adequacy to financial health arises primarily from strengthening the bank's overall financial resilience rather than from reducing the incidence of non-performing loans. In other words, capital functions more effectively as a safeguard against financial shocks than as a direct determinant of credit quality.

The findings also support **Risk Management Theory**, which views capital as a fundamental component of the banking risk management framework. According to **Saunders and Cornett (2022)**, capital serves as a financial buffer that enables banks to absorb losses when risks materialize. However, the quality of the loan portfolio depends more directly on the effectiveness of credit risk management practices, including prudent credit appraisal, borrower monitoring, internal control systems, and policies for managing non-performing loans. Consequently, a well-capitalized bank does not automatically experience lower credit risk unless these operational risk management processes are implemented effectively.

The results do not support the proposed mediation hypothesis and may be explained by the characteristics of Indonesian BPRs during the 2020–2024 observation period. Throughout this period, many BPRs strengthened their capital structures to comply with regulatory requirements and improve resilience during the post-pandemic economic recovery. Nevertheless, increases in capital adequacy were not necessarily accompanied by reductions in non-performing loans because credit quality remained strongly influenced by borrowers' financial conditions, the quality of lending decisions, supervisory effectiveness, and broader macroeconomic conditions. Consequently, the indirect effect of CAR on financial distress through NPL was not statistically significant.

From a practical perspective, the findings suggest that strengthening capital remains an essential strategy for enhancing the financial resilience of BPRs. However, increasing capital alone is insufficient to improve credit quality. Capital strengthening should therefore be

complemented by improvements in credit appraisal procedures, borrower monitoring, loan supervision, and comprehensive risk management practices. Such an integrated approach will enable banks to maximize the benefits of capital adequacy while improving the effectiveness of credit risk management.

Overall, the findings demonstrate that credit risk does not serve as the mechanism through which capital adequacy influences financial distress in Indonesian People's Economic Banks. Instead, CAR exerts its influence primarily through its direct contribution to financial resilience, operational stability, and the bank's capacity to absorb unexpected losses rather than through changes in the level of non-performing loans.

4. Conclusion

This study examined the effects of capital adequacy (CAR), liquidity policy (LDR), and operational efficiency (BOPO) on financial distress, with credit risk (NPL) serving as an intervening variable in Indonesian People's Economic Banks (BPRs) during the 2020–2024 period.

The findings indicate that capital adequacy (CAR) and operational efficiency (BOPO) are significant determinants of financial distress, as measured by the Modified Altman Z''-Score. CAR has a positive and significant effect on the Modified Altman Z''-Score, suggesting that higher capital adequacy strengthens the financial resilience of BPRs and reduces the likelihood of financial distress. In contrast, BOPO has a negative and significant effect, indicating that lower operational efficiency weakens banks' financial conditions and increases the risk of financial distress. Liquidity policy (LDR), however, does not significantly influence financial distress, implying that variations in liquidity management alone were not sufficient to explain changes in the financial condition of BPRs during the study period.

Regarding credit risk, the results show that CAR does not significantly affect the Non-Performing Loan (NPL) ratio, whereas both LDR and BOPO have positive and significant effects. These findings indicate that more aggressive lending policies and lower operational efficiency contribute to higher levels of non-performing loans. Furthermore, NPL has a statistically significant effect on financial distress. However, the direction of this relationship differs from the initial hypothesis, suggesting that during the 2020–2024 observation period, increases in credit risk did not necessarily correspond to a deterioration in the financial condition of BPRs. This finding may reflect the ability of many BPRs to maintain financial stability through adequate capital, strengthened loan-loss provisions, and effective risk management during the post-pandemic recovery period.

The mediation analysis further demonstrates that credit risk is unable to mediate the relationship between capital adequacy and financial distress. This finding indicates that the influence of capital adequacy on the financial condition of BPRs occurs primarily through its direct contribution to financial resilience rather than indirectly through changes in credit risk.

Overall, this study demonstrates that maintaining adequate capital and improving operational efficiency are fundamental strategies for strengthening the financial stability of People's Economic Banks. While prudent liquidity management and effective credit risk control remain essential, sustainable financial resilience depends on an integrated risk management framework that combines strong capitalization, efficient operations, sound lending practices, and comprehensive credit risk management. These findings contribute to the banking risk management literature by providing empirical evidence from Indonesia's BPR sector during the critical transition from the COVID-19 pandemic to the post-pandemic economic recovery and offer practical implications for bank managers and financial regulators seeking to enhance the resilience and sustainability of the rural banking industry.

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