

ABSTRACT

The increasing level of Non-Performing Loans (NPLs) poses serious challenges to bank performance, particularly in terms of efficiency and risk management. High non-performing loans weaken asset quality, increase provisioning costs, and potentially disrupt the intermediation function of banks. In this context, bank efficiency becomes a crucial indicator of financial stability. This study aims to analyze the effect of non-performing loans on bank efficiency in Indonesia and to examine whether this relationship differs between state-owned and private banks. In addition, this study also investigates the role of internal bank characteristics, including bank size, loan ratio, and the moderating role of the Capital Adequacy Ratio (CAR) in the relationship between non-performing loans and efficiency.

This study employs an output-oriented Data Envelopment Analysis (DEA) with Variable Returns to Scale (VRS), where Non-Performing Loans are treated as an undesirable output to measure bank efficiency. Furthermore, panel data regression is applied to assess the impact of internal bank factors and to test the moderating role of CAR. The sample consists of 46 banks listed on the Indonesia Stock Exchange over the period 2020–2024. The analysis is conducted by comparing state-owned and private banks to capture differences in ownership structure and operational characteristics.

The results show that non-performing loans have a negative and significant effect on bank efficiency, indicating that higher credit risk weakens banks' ability to transform inputs into productive outputs. Bank size and loan ratio are also found to significantly affect efficiency, suggesting that operational scale and lending intensity play important roles in determining bank performance. However, Capital Adequacy Ratio does not moderate the relationship between non-performing loans and efficiency, implying that capital strength alone is insufficient to mitigate the adverse impact of problematic loans. The findings further indicate that there is no significant difference in efficiency levels between state-owned banks and private banks. These results provide important implications for strengthening credit risk management, improving capital regulation, and enhancing operational efficiency in the Indonesian banking sector.

Keywords: *Bank Efficiency; Non-Performing Loans; Capital Adequacy Ratio; Data Envelopment Analysis; Bank Ownership*