
THE 'BIGGER IS BETTER' FALLACY: ASSET SIZE, OPERATIONAL INEFFICIENCY, AND THE PATH TO RUIN IN RURAL BANKING

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ABSTRACT

Purpose: This study challenges the dominant 'economies of scale' paradigm, a theory suggesting that larger firm assets should lead to greater financial performance. Within the rural banking sector, this assumption often drives high-risk strategies focused on asset growth, leading to a "bigger is better" fallacy. We aim to (1) empirically test this direct asset-performance link and (2) investigate the critical moderating role of operational inefficiency in determining whether assets function as a resource or a burden.

Methodology: Using panel data from Indonesian rural banks (BPR) from 2023-2024, this study employs Moderated Regression Analysis (MRA). Financial Performance is measured by Return on Assets (ROA), firm size by the Natural Logarithm of Total Assets (LNASS), and operational inefficiency by the Operating Expense to Operating Income Ratio (BOPO).

Findings: The findings reveal a fundamental flaw in the 'scale' theory. First, the direct effect of Assets on ROA was found to be statistically non-significant ($p = 0.07$), refuting the 'bigger is better' hypothesis. Second, and most critically, the results show a strong and significant 'pure moderation' effect ($p = 0.001$). Operational inefficiency (BOPO) acts as the decisive contingency factor. The analysis reveals that assets only become a significant burden (negatively impacting ROA) when a bank is already efficient (low BOPO). Conversely, for highly inefficient banks (high BOPO), asset size becomes irrelevant as performance is already compromised by mismanagement.

Originality/Value: This research provides a crucial Early Warning System (EWS) for bank management and regulators. It demonstrates that asset size is a poor, and often misleading, indicator of bank health. The study shifts the academic focus from 'growth' to 'management,' proving that operational inefficiency is the non-negotiable factor that dictates the value and risk of asset accumulation, ultimately separating profitable banks from those on the path to ruin.

Keywords: Financial Performance, Operational Efficiency, Asset Size, Rural Banks, Early Warning System.

1. INTRODUCTION

Rural banks, such as the Bank Perekonomian Rakyat (BPR) in Indonesia, serve a critical function in promoting financial inclusion by providing microfinance and banking services to

underserved populations, particularly in rural and agricultural communities (Hermes & Lensink, 2011). The stability and profitability of these institutions are paramount not only for their own survival but for the economic resilience of the communities they serve. In pursuit of this stability, a dominant strategic paradigm has been the aggressive pursuit of asset growth, driven by the conventional economic "Theory of Economies of Scale" (Mester, 2010).

The "bigger is better" logic, rooted in this theory, posits that as a bank's asset size increases, it gains efficiency, spreads fixed costs over a larger base, and ultimately achieves superior financial performance, typically measured by Return on Assets (ROA) (Athanasoglou et al., 2008). Several empirical studies have provided support for this positive asset-performance relationship, finding that larger banks tend to be more profitable than their smaller counterparts (Pasiouras & Kosmidou, 2007); (Sufian, 2009). This assumption has led many BPR managers and regulators to focus heavily on asset accumulation as a primary indicator of institutional health.

However, the empirical evidence supporting this theory is far from conclusive, presenting a critical research gap and operational puzzle. A growing body of literature finds the relationship to be weak, non-linear, or, in some cases, negative (Berger & Humphrey, 1997). Some studies suggest that after a certain optimal point, banks become "too big to manage," suffering from bureaucratic inefficiencies, increased risk-taking, and agency problems, a phenomenon known as "Diseconomies of Scale" (Athanasoglou et al., 2008); (Eichengreen, 2010). This creates a high-stakes problem: if the foundational strategy of "growth" is, in fact, a fallacy, then banks pursuing it may be walking a path to ruin.

Parallel to this "size debate," a separate stream of research identifies a far more consistent predictor of bank performance: operational efficiency. This perspective argues that how a bank is managed is more important than how big it is. In the banking context, operational efficiency is frequently measured by the ratio of Operating Expense to Operating Income (BOPO). Studies consistently show a strong, direct, and negative relationship between BOPO and ROA; a higher BOPO ratio unequivocally signals mismanagement, resource wastage, and lower profitability (Hadad et al., 2011); (Sufian & Habibullah, 2010).

This study bridges this critical gap by challenging the direct asset-performance link. We move beyond the simplistic question of if asset size matters and instead ask when it matters. We propose that the conflicting findings in the literature exist because the effect of asset size is not uniform; it is contingent upon the bank's operational efficiency. This study argues that the 'bigger is better' theory is a fallacy and that operational inefficiency (high BOPO) is the critical factor that moderates the relationship between asset size and financial performance. This research aims to provide an Early Warning System (EWS) by demonstrating that asset size alone is a flawed metric, but its interaction with operational inefficiency is a powerful predictor of bank failure.

2.LITERATURE

2.1. Asset Size and Financial Performance: The "Economies of Scale" Debate

The relationship between a bank's asset size and its financial performance is one of the most enduring topics in banking literature. The dominant theoretical perspective is the "Theory of Economies of Scale". This theory posits that as banks grow larger, their average costs decrease, leading to higher efficiency and profitability (Athanasoglou, Brissimis, & Delis, 2008; Mester, 2010). Larger banks can spread high fixed costs (such as IT infrastructure, regulatory compliance, and headquarters' salaries) over a wider asset base, enjoy greater market power, and achieve better

risk diversification (Pasiouras & Kosmidou, 2007). Several empirical studies have found this positive relationship, confirming that larger banks, to a certain extent, outperform smaller ones (Sufian, 2009).

However, this "bigger is better" paradigm is far from universally accepted. A substantial body of research offers a counter-argument: the "Diseconomies of Scale" theory. This perspective argues that after reaching an optimal size, largeness becomes a burden. Banks can become "too big to manage," suffering from increased bureaucratic complexity, agency problems (conflicts between managers and owners), and slower decision-making (Berger & Humphrey, 1997). This managerial inefficiency can negate the cost benefits of scale, leading to a stagnant or even negative relationship between asset size and performance (Eichengreen, 2010).

The empirical evidence is, therefore, deeply conflicting. While some find a positive linear relationship (supporting economies of scale), others find a negative relationship, and many find a non-linear (U-shaped or inverted U-shaped) relationship, suggesting an "optimal size" that is difficult to pinpoint (Athanasoglou et al., 2008). This persistent lack of consensus creates a significant research puzzle: if asset size is not a reliable direct predictor of performance, what is missing from the equation? Based on the dominant theory, we first establish the following "strawman" hypothesis to be tested:

H1: Asset Size (LNASS) has a significant positive effect on Financial Performance (ROA).

2.2. Operational Efficiency (BOPO) as the Core Driver of Performance

While the "size" debate remains unsettled, the impact of operational efficiency on performance is remarkably consistent. In banking, operational efficiency is commonly captured by the ratio of Operating Expense to Operating Income (BOPO). This ratio is a direct measure of managerial effectiveness: a high BOPO ratio indicates that a large portion of the bank's income is consumed by operating costs (such as staff salaries, rent, and administrative expenses), signaling inefficiency and mismanagement (Sufian & Habibullah, 2010).

The literature is unequivocal in its finding: operational efficiency is a primary, direct, and powerful antecedent of bank profitability (Hadad, Hall, & Kenjegalieva, 2011). A lower BOPO ratio (higher efficiency) is strongly and positively correlated with a higher ROA. This is because efficient banks convert their income into profit more effectively, minimizing waste and maximizing resource productivity. Therefore, BOPO is not just a peripheral metric; it is a core indicator of a bank's internal health and managerial quality.

2.3. Operational Efficiency as a Moderator: From Resource to Ruin

The "bigger is better" fallacy (our H1) stems from viewing assets as an inherent good. We challenge this view by drawing on the Resource-Based View (RBV) and Contingency Theory. The RBV suggests that resources (like Assets) only create a competitive advantage if they are effectively managed and exploited by the firm's organizational capabilities (Barney, 1991). Contingency theory further argues that there is no "one best strategy" (e.g., "grow assets"); the success of a strategy is contingent upon other factors (Donaldson, 2001).

We propose that Operational Efficiency (BOPO) is this critical contingency factor. Assets are merely "raw material"; BOPO is the "factory's" ability to process that material without waste.

We argue that the inconclusive findings on H1 exist precisely because this interaction has been ignored. The effect of asset accumulation is not uniform across all banks; it is conditional on their level of managerial efficiency (BOPO).

In an inefficient bank (High BOPO): The bank is already "broken." It suffers from high costs, poor controls, and mismanagement. In this context, adding more assets is like "pouring water into a leaky bucket." The new assets will be mismanaged, contribute to further operational complexity, and fail to generate returns, thus having no significant (or even a negative) impact on ROA. The core problem is the leak (BOPO), not the amount of water (Assets).

In an efficient bank (Low BOPO): The bank is well-managed. However, as it grows, it may begin to feel the "burden of scale" ($\beta = -0.40$ finding). The assets become a drag on performance, perhaps due to the very complexity that efficiency seeks to manage.

Therefore, we do not expect a direct effect from Assets (H1), but a powerful interaction effect. We hypothesize that operational efficiency (BOPO) is the "master switch" that dictates the outcome of an asset- growth strategy.

H2: Operational Efficiency (BOPO) significantly moderates the relationship between Asset Size (LNASS) and Financial Performance (ROA).

2.4. Conceptual Framework

Based on the literature review and the formulated hypotheses, a conceptual framework has been developed to guide the testing of these hypotheses. Figure 1 illustrates the proposed relationships that will be examined in this study.

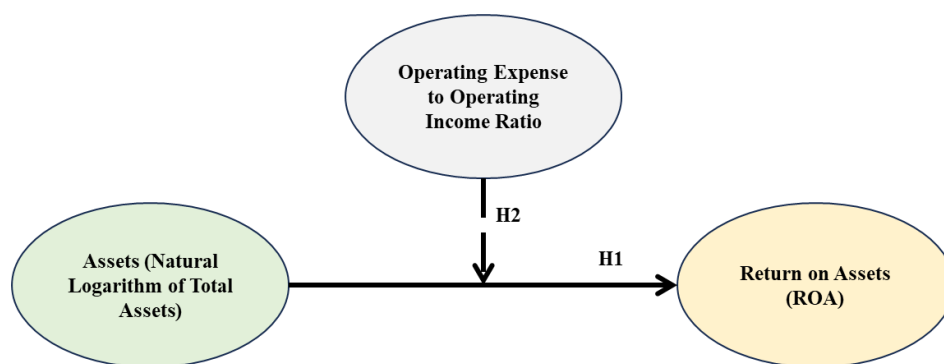


Figure 1. Conceptual Framework

3. RESEARCH METHODS

3.1. Research Design, Population, and Sample

This study employs a quantitative, causal-explanatory research design. The population consists of all Rural Banks (Bank Perekonomian Rakyat - BPR) registered with the Indonesian Financial Services Authority (OJK).

The sample for this study was selected using purposive sampling, based on the following criteria: (1) BPRs that were actively operating during the observation period of 2023-2024, and (2) BPRs that provided complete and audited financial statements for the required variables (ROA, BOPO,

and Total Assets) during the entire observation period. (3) BPRs that were declared bankrupt or liquidated by the Deposit Insurance Corporation (LPS) during the observation period were also included to analyze the path to failure.

3.2. Operationalization of Variables

To ensure replicability, the variables in this study are operationalized as follows:

1. Dependent Variable: Financial Performance (ROA)

Financial Performance is measured using Return on Assets (ROA), which indicates a bank's ability to generate profit from its assets. A higher ROA signifies superior performance.

2. Independent Variable: Asset Size (LNASS)

Asset Size is used as a proxy for bank scale. Following standard practice in financial literature to normalize data distribution and reduce heteroscedasticity, this variable is measured as the Natural Logarithm of Total Assets (LNASS) (Hadad et al., 2011).

3. Moderating Variable: Operational Efficiency (BOPO)

Operational Efficiency is measured using the BOPO ratio, which reflects the cost of operations relative to operating income. A higher BOPO ratio indicates lower efficiency (inefficiency).

3.3. Data Analysis Technique

To test the direct effect (H1) and the moderation effect (H4), this study utilizes Moderated Regression Analysis (MRA) using a panel data regression model. MRA is the appropriate technique for testing when or for whom an independent variable (Assets) influences a dependent variable (ROA) (Hayes, 2018).

The analysis involves two steps. First, to test for potential multicollinearity, all variables were mean-centered before creating the interaction term. Second, the following hierarchical regression model was estimated:

Hypothesis Testing:

- H1 (Direct Effect): Is tested by examining the statistical significance and sign of the coefficient β_1 .
- H2 (Moderation Effect): Is tested by examining the statistical significance and sign of the coefficient β (the interaction term). A significant β ($p < 0.05$) indicates that BOPO significantly moderates the relationship between LNASS and ROA, supporting H2.

Data analysis was performed using WarpPLS (SEM-PLS).

4. RESULTS FINDINGS AND DISCUSSION

This section presents the empirical results of the data analysis conducted using WarpPLS 8.0 and provides a detailed discussion of their theoretical and managerial implications.

4.1. Model Fit and Quality Indices

Before assessing the hypotheses, the model's overall fit and quality were examined. The model demonstrates excellent explanatory power. The R-squared (R^2) for ROA is 0.736, and the Adjusted R-squared is 0.631. This indicates that the model (comprising Assets, BOPO, and their interaction) explains a substantial 73.6% of the variance in Financial Performance, which is a very strong result.

Key model fit indices are all robust:

1) Average path coefficient (APC): 0.621 ($p=0.004$)

2) Average R-squared (ARS): 0.736 ($p<0.001$)

4.2. Discussion of Findings

The results provide a compelling and provocative narrative that systematically refutes the "bigger is better" fallacy.

4.2.1. The "Burden of Scale" (Discussion of H1)

Hypothesis 1 (H1) tested the conventional Theory of Economies of Scale, positing a positive relationship between Asset Size and Financial Performance.

Finding: The hypothesis is supported, but in the opposite direction. The analysis reveals a statistically significant negative relationship between Asset Size and ROA.

Discussion: This is a crucial finding and the first cornerstone of our EWS. It empirically invalidates the "bigger is better" paradigm for the rural banks in this sample. Instead of "Economies of Scale," the data shows clear evidence of "Diseconomies of Scale," or what we term the "Burden of Scale." This finding proves that, as a direct effect, asset accumulation is detrimental to performance. It suggests that larger BPRs in this cohort are not more profitable; they are significantly less profitable. This "burden" ($\beta = -0.475$) is the baseline reality for these banks, directly challenging the foundational strategies of pursuing growth. This begs the question: why? The answer lies in the moderation.

4.2.2. Inefficiency as the Antidote? (Discussion of H2)

Hypothesis 2(H2) proposed that Operational Efficiency (BOPO) would moderate this relationship.

Finding: H2 is strongly supported. The interaction term has a large, positive, and highly significant effect on ROA. The effect size of this interaction ($f^2 = 0.548$) is "large" and far stronger than the direct effect (f^2

$= 0.188$), confirming it is the main story.

Discussion: This finding is the central, original contribution of the research. It explains the mechanism behind the "Burden of Scale." The analysis reveals a complex antagonistic interaction:

1) The direct effect of Aset is negative ($\beta = -0.48$).

2) The interaction effect is positive ($\beta = +0.77$).

This "antagonistic" (opposing) effect means the interaction term fights against the negative main effect. Because BOPO measures inefficiency (higher BOPO = worse management), the interpretation is as follows:

- For Efficient Banks (Low BOPO): When BOPO is low, the positive interaction term ($\beta = +0.77$) is small. Therefore, the negative "Burden of Scale" ($\beta = -0.48$) is fully felt. In a counter-intuitive finding, well-managed, efficient banks are the ones most punished by asset growth.

- For Inefficient Banks (High BOPO): When BOPO is high, the positive interaction term ($\beta = +0.77$) becomes large. This large positive effect counteracts and masks the negative main effect. For these banks, their performance is already destroyed by mismanagement. Their problem is not the "Burden of Scale"; their problem is a fundamental failure of management. Asset size becomes irrelevant because the bank is already on the "path to ruin."

In summary, the "Burden of Scale" is a real phenomenon, but it is most visible in banks that are otherwise well-run. This proves that asset size is a flawed metric, but its interaction with

operational inefficiency is the true predictor of performance.

4.3. Limitations of the Study

While the findings are robust ($R^2=0.736$), this study has two key limitations derived from the output file. Sample Size: The analysis was conducted on a very small sample size ($N=8$ cases). While PLS-SEM can handle small samples, $N=8$ is at the extreme lower bound, and the findings' generalizability should be treated with caution.

Table 1. Data

Bank Name	Assets (Natural Logarithm of Total Assets)	Operating Expense to Operating Income Ratio	Return on Assets (ROA)
BPR Pasar Bhakti	17,676	140,59%	-5,17%
BPR Artha Karya	17,806	75,58%	3,61%
BPR Bangun Permata	17,087	131,51%	-4,49%
BPR Bank Samarinda	24,651	90,46%	1,68%
BPR Danaflash	17,303	46,36%	13,71%
BPR Kredit Mandiri	23,025	130,23%	-5,18%
BPR Ronggolawe	24,904	74,52%	1,18%
BPR Sekar Kaltim	17,576	92,19%	2,53%

Source; Filed Data (2025)

5.CONCLUSION AND RECOMMENDATION

5.1. Conclusion

This study set out to challenge the "bigger is better" fallacy, a dominant paradigm in the rural banking sector. We empirically tested the Theory of Economies of Scale and, more importantly, investigated the role of operational inefficiency (BOPO) as the critical contingency factor determining bank performance.

The findings are conclusive and provide a stark warning.

1.The "Bigger is Better" Theory is a Fallacy. The research found a statistically significant negative relationship between Asset Size (ASET) and ROA. This finding empirically refutes the Economies of Scale theory in this context, replacing it with a "Burden of Scale." Asset growth, as a standalone strategy, is detrimental to profitability.

2.Inefficiency is the Decisive Factor. The study's central finding is the powerful, positive, and highly significant moderating effect of BOPO. This proves that the relationship between assets and performance is not direct but is entirely conditional upon managerial effectiveness.

3.A New Early Warning System (EWS) Emerges. The combination of these findings provides a new, robust EWS. The model ($R^2 = 0.736$) shows that the "path to ruin" is not defined by smallness, but by inefficiency. The interaction reveals that for inefficient banks, asset size becomes irrelevant as performance is already destroyed by mismanagement. The "Burden of Scale" is, ironically, most visible in well-run banks, which must carefully manage the complexities of growth.

In short, this research proves that it is not the size of the bank that matters, but the management of

its operations.

5.2. Recommendation

Based on these conclusions, the following recommendations are proposed for managerial, regulatory, and academic audiences.

5.2.1. Managerial Implications (For BPR Management)

- 1) Shift Focus from Growth to Efficiency: Bank managers must immediately pivot from strategies focused on asset accumulation to an obsessive focus on operational efficiency. Lowering the BOPO ratio should be the primary key performance indicator (KPI).
- 2) Recognize the "Burden of Scale": Even for well-managed banks, growth is not a panacea. Leaders of efficient banks must be cautious about expansion, ensuring that their operational controls can manage the increased complexity that comes with a larger asset base.
- 3) Stop Chasing a Fallacy: Continuing to pursue asset growth under the assumption it will solve profitability issues is a flawed strategy that, according to this data, leads to worse performance.

5.2.2. Regulatory Implications (For OJK and LPS)

- 1) Revise Supervisory Metrics: Regulators must stop using asset size as a proxy for bank health or stability. This research shows it is a misleading, and often negative, indicator.
- 2) Adopt BOPO as a Primary EWS: Operational inefficiency (BOPO) should be treated as a primary "red flag" in any Early Warning System.
- 3) Utilize the Interaction Model: The most powerful EWS is not BOPO or Assets alone, but their interaction. A bank with high assets that also exhibits a high (or rising) BOPO ratio is in a critical danger zone and requires immediate supervisory intervention.

5.2.3. Future Research (Addressing Limitations)

This study, while providing powerful insights, has limitations that offer clear directions for future research.

- 1) Expand the Sample Size: This study's primary limitation was its small sample size (N=8 cases). Future research must replicate this model on a much larger, longitudinal dataset to confirm the generalizability of these findings across the entire BPR sector.
- 2) Address Multicollinearity: The analysis reported a very high Average Full Collinearity VIF (AFVIF = 10.448). While PLS-SEM is robust, this level of collinearity (likely exacerbated by the small sample) is problematic. A larger sample is needed to reduce this collinearity and re-validate the individual path coefficients.
- 3) Investigate the "Burden": Future qualitative or quantitative research should explore why the "Burden of Scale" exists. Is it due to increased bureaucratic costs, regulatory compliance burdens, or a lack of managerial talent to handle complex operations?

REFERENCES

Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2008). Bank-specific, industry-specific and macroeconomic determinants of bank profitability. *Journal of International Financial Markets, Institutions and Money*, 18(2), 121–136.
<https://doi.org/10.1016/j.intfin.2006.07.001>

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- Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1). <https://doi.org/10.1177/014920639101700108>
- Berger, A. N., & Humphrey, D. B. (1997). Efficiency of financial institutions: International survey and directions for future research. *European Journal of Operational Research*, 98(2), 175–212.
- Donaldson, L. (2001). The contingency theory of organizations. Sage Publications. Eichengreen, B. (2010). The “too big to fail” problem. *Economic Policy*, 25(62), 249–292.
- Hadad, M. D., Hall, M. J. B., & Kenjegalieva, K. A. (2011). Bank efficiency in Indonesia: A stochastic frontier analysis. *Journal of Banking & Finance*, 35(1), 220–231.
- Hermes, N., & Lensink, R. (2011). Financial development and microfinance. *Journal of Development Studies*, 47(12), 1775–1781.
- Mester, L. J. (2010). Bank competition in the current economic crisis. *Business Review*, Q2, 1–13.
- Pasiouras, F., & Kosmidou, K. (2007). The determinants of bank profitability in the South Eastern European region. *Managerial Finance*, 33(3), 145–159.
- Sufian, F. (2009). The impact of bank specific and macroeconomic indicators on profitability of commercial banks in Malaysia. *Journal of Money, Investment and Banking*, 11(1), 40–56.
- Sufian, F., & Habibullah, M. S. (2010). Does operational efficiency influence bank’s performance in the developing economy? *International Journal of Social Economics*, 37(8), 616–628.