



The Effect of Operational Risk on Bank Profitability in the Era of Economic Recovery

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Abstract

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This study aims to analyze the effect of operational risk on bank profitability in Indonesia during the period from March 2022 to March 2023. Operational risk is represented by the *Biaya Operasional terhadap Pendapatan Operasional* (BOPO) ratio or Operational Expense to Operational Income, while profitability is measured by Return on Assets (ROA). The research employs a quantitative approach using secondary data from the *Statistik Perbankan Indonesia* (SPI) published by the Financial Services Authority (*Otoritas Jasa Keuangan*/OJK). Data analysis was performed through simple linear regression using SPSS software. Descriptive results show that Indonesian banks maintained moderate operational efficiency and relatively stable profitability throughout the observation period. Classical assumption tests confirm that the regression model satisfies the assumptions of normality, homoscedasticity, and independence. The regression results indicate that Operational Expense to Operational Income has a negative but insignificant effect on Return on Assets, suggesting that higher operational costs tend to reduce profitability, although the impact is not statistically significant. The study highlights the importance of improving operational efficiency, cost management, and digital transformation strategies to sustain profitability in the post-pandemic banking recovery phase.



1. Introduction

The banking sector has a strategic role in supporting national economic stability and growth, especially in the post-COVID-19 pandemic economic recovery phase. The years 2022 to 2023 are an important period when banks in Indonesia are faced with the challenges of operational efficiency and the acceleration of digital transformation. The implementation of digital technology in the banking system, such as service automation, digital onboarding, and cybersecurity, has consequences for increasing the complexity of operational risks (Islamiyah & Sukaris, 2023). This risk includes potential losses due to internal process failures, human error, systems, or external events (Sentika et al., 2023).

Operational efficiency is a crucial aspect in maintaining banking competitiveness amid technological disruption and cost pressures. One of the main indicators to measure efficiency is BOPO (Operating Costs to Operating Income). This ratio reflects the level of effectiveness of banks in managing operational resources to generate revenue. The higher the BOPO value, the greater the burden of operational costs borne by banks, which can reduce profitability (Lestari & Setianegara, 2020).

On the other hand, ROA (Return on Assets) describes the ability of banks to manage their assets to generate net profit. ROA is often used as a key indicator of profitability in the banking industry (Amalia & Nugraha, 2021). When operational risks increase and efficiency decreases, banks' ability to maximize assets and profits also tends to decline (Pratiwi & Diana, 2021). Therefore, the negative relationship

between BOPO and ROA is an important concern in assessing banking performance, especially during the economic recovery period.

Several previous studies have shown that BOPO has a significant influence on ROA in the banking sector. For example, Hidayati and Yudowati (2020) found that the increase in BOPO decreased the profitability of commercial banks in Indonesia. Similar results were put forward by Safitri et al. (2021) which showed that operational efficiency is the main determinant of financial performance, even more dominant than the liquidity factor. In addition, Suryaningsih and Sudirman (2020) emphasized that high operational risks, especially those caused by digital technology adaptation, can reduce banks' profitability in the era of digital transformation.

Although many studies have examined the relationship between BOPO and ROA, most focus on the pre-pandemic period or without considering the digitalization aspect. Therefore, the study using OJK SPI data for the period March 2022-March 2023 provides new relevance because it reflects the current post-crisis conditions and the dynamics of operational efficiency in the midst of digital transformation. This period is important because it reflects a recovery phase that demands rapid adaptation to changing customer behavior and banking digital infrastructure (Rachman et al., 2023). This research is expected to make an empirical contribution to the banking risk management literature by highlighting the influence of operational risk on profitability in the digital era. Practically, the results of this study can help bank management and regulators such as the OJK in strengthening operational efficiency policies and technology-based risk mitigation so that bank profitability is maintained during the economic recovery period.

2. Literature Review

2.1 Operational Risks and Banking Efficiency

Operational risk is a risk that arises due to internal process inefficiencies, human error, system disruptions, or external events that affect the bank's operational activities (Sentika et al., 2023). In the context of modern banking, operational risks not only include administrative errors, but also include potential technological disruptions due to digitalization of services. The increasing use of electronic systems, online transactions, and cyber operations has raised new challenges in maintaining system reliability and data integrity (Suryaningsih & Sudirman, 2020).

A commonly used indicator to measure operational risk is the BOPO (Operating Costs to Operating Income) ratio. BOPO describes the bank's efficiency in managing costs against the operating income generated. The higher the value of BOPO, the greater the portion of costs needed to earn revenue, which indicates low operational efficiency (Islamiyah & Sukaris, 2023). Operational efficiency is crucial for banks in the era of economic recovery as pressure on profit margins increases due to rising digitization costs and changes in customer behavior. Therefore, bank management needs to optimize the use of technology so that the increase in BOPO can be suppressed through process innovation and cost structure efficiency.

2.2 Bank Profitability in the Era of Digitalization and Economic Recovery

Profitability reflects the ability of banks to generate profits from their assets. The common indicator used is ROA (Return on Assets), which describes the effectiveness of management in utilizing assets to obtain net profit (Amalia & Nugraha, 2021). Profitability is influenced by internal factors such as cost efficiency,

risk management, as well as external conditions such as economic stability and the development of banking technology (Lestari & Setianegara, 2020).

In the era of digitalization, bank profitability is increasingly influenced by the ability of institutions to adopt technological innovations efficiently without sacrificing risk control. Digital transformation accelerates services and increases transaction volumes, but also increases the cost of IT infrastructure investment and human resource training. The imbalance between digitalization and cost control can reduce banks' profit margins (Pratiwi & Diana, 2021). During the economic recovery period (2022–2023), the pressure on operational costs increased as banks adapted to new regulations and digital market demands. Thus, increasing efficiency through reducing BOPO is the main key in maintaining or increasing ROA.

Hypothesis 1 (H1): Operational risks measured by BOPO have a negative and significant effect on bank profitability as measured by ROA in the economic recovery period.

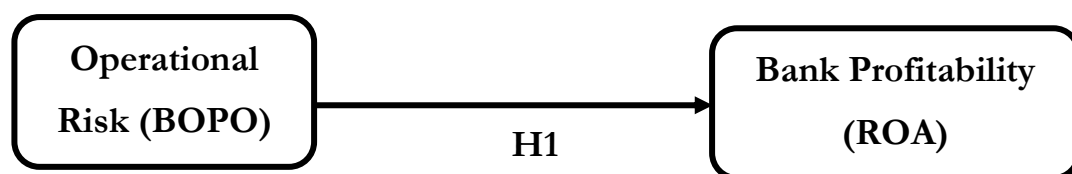


Figure.1 Conceptual Framework

BOPO acts as the independent variable (X) representing operational efficiency, while ROA is the dependent variable (Y) indicating profitability. The

expected relationship is negative higher BOPO signifies greater operational cost pressure, which tends to reduce ROA.

3. Methods

This study uses a quantitative approach with the aim of empirically examining the influence of operational risk on bank profitability in the era of economic recovery. The quantitative approach was chosen because it was able to objectively measure the relationship between variables using numerical data and statistical analysis. The data used is secondary data sourced from the publication of Indonesian Banking Statistics (SPI) published by the Financial Services Authority (OJK) for the period March 2022 to March 2023. The study population included all commercial banks registered with the OJK, while sample selection was carried out by the purposive sampling method, which is only banks that had complete and consistent financial statements during the observation period.

The independent variable in this study is operational risk, which is measured using the BOPO (Operating Costs to Operating Income) ratio. Meanwhile, the dependent variable is profitability, which is measured through ROA (Return on Assets). Data processing was carried out using SPSS software to obtain the results of descriptive analysis, classical assumption tests, and simple linear regression tests. Descriptive analysis is used to describe the characteristics of the data, such as the mean, minimum, maximum, and standard deviation of each variable.

Before hypothesis testing, normality, heteroscedasticity, and autocorrelation tests were first carried out to ensure that the data met the regression assumptions.

After the assumption is met, a simple linear regression test is performed to determine the direction and significance of the influence of the BOPO variable on ROA. Significance value (p-value) is compared to a confidence level of 0.05 to determine the acceptance or rejection of a hypothesis. The results of the analysis are expected to show whether the operational risks reflected in the BOPO ratio have a negative and significant effect on the bank's profitability as measured through ROA. Thus, the results of this study can provide empirical evidence on the importance of operational efficiency in maintaining the bank's financial performance during the economic recovery.

4. Results

This study aims to analyze the influence of operational risks on the profitability of banks in Indonesia during the period from March 2022 to March 2023, which is the transition period towards economic stability after the COVID-19 pandemic. Digital transformation in banking is a key focus, where improving operational efficiency and risk control are crucial factors for financial performance (Sentika et al., 2023).

The research data was obtained from the Indonesian Banking Statistics (SPI) published by the Financial Services Authority (OJK), with the variable operational risk measured through the ratio of BOPO (Operating Costs to Operating Income) and profitability measured by ROA (Return on Assets). The analysis was carried out using quantitative methods with the help of SPSS, which included descriptive statistical tests, classical assumption tests, and simple linear regression analysis.

Table.1 SPSS Output Descriptive Analysis Test

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Hours of deviation
BOPO	13	76.69	86.07	79.0131	2.57571
LENGTH	13	1.59	1.82	1.6992	.08036
Valid N (listwise)	13				

Based on table 1 of the data processing results, the following descriptive statistics were obtained: the BOPO value has a range between 76.69 and 86.07, with an average value of 79.01 and a standard deviation of 2.57. This average value shows that in general, banks in Indonesia still have a moderate level of operational efficiency, with around 79% of operating income used to cover operating costs. This is in line with the results of the research Islamiyah and Sukaris (2023) which explains that the high BOPO ratio indicates that there is efficiency pressure due to the increasing cost of digitalization and technology adaptation.

Meanwhile, the ROA value ranges from 1.59 to 1.82, with an average of 1.70 and a standard deviation of 0.08. This value indicates that the profitability of banks in Indonesia is relatively stable, but tends to be low. Pratiwi and Diana (2021) also stated that during the economic recovery period, the profitability of Islamic and conventional banks stagnated due to increased operational costs that had not been fully offset by an increase in revenue. Thus, the results of the descriptive analysis show that although the bank's profitability is relatively stable, the level of efficiency

is still a major challenge, and this indicates a potential negative relationship between BOPO and ROA.

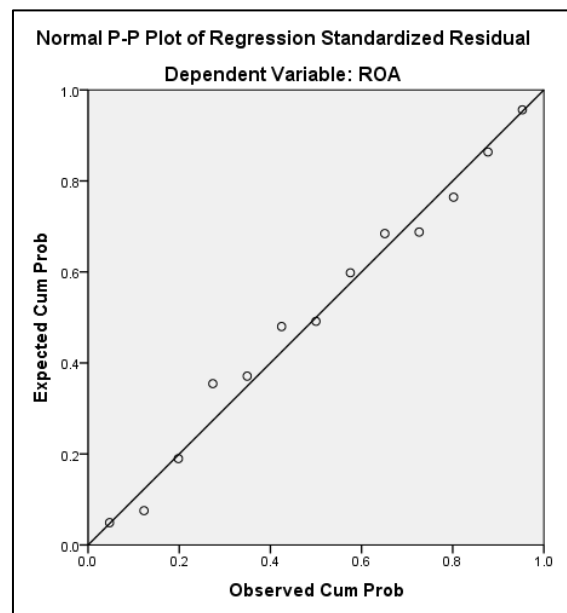


Figure.2 Output SPSS P-Plot of Regression

The normality test was carried out by looking at the Normal P–P Plot of Regression Standardized Residual chart. The results showed that the residual data points spread around the diagonal line and followed the direction of the line relatively symmetrically. This shows that the residual is normally distributed, so the assumption of normality is met. This condition shows that the regression model used is feasible to be forwarded to the next stage of analysis. According to Amalia and Nugraha (2021), the fulfillment of normality assumptions is important to ensure the validity of the results of the t-test and the F-test in the linear regression model.

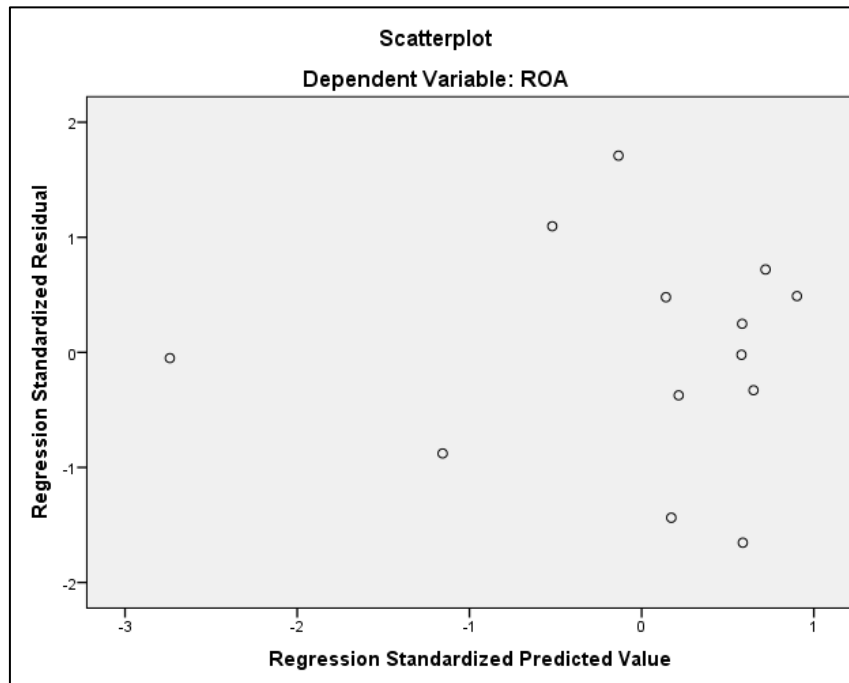


Figure.3 Output SPSS Scatterplot

The results of the heteroscedasticity test through the Scatterplot graph show that the residual points are randomly spread above and below the zero axis without forming a specific pattern. This pattern indicates that there is no heteroscedasticity, so the regression model meets the assumption of homogeneity. Thus, the residual variance between observations is constant. These results are in line with research Suryaningsih and Sudirman (2020) which found that residual stability in banking financial models shows the effectiveness of controlling variations in operating costs in the midst of fluctuating economic conditions.

Tabel.2 Output SPSS Model Summary

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.479a	.230	.160	.07366	1.561
a. Predictors: (Constant), BOPO					
b. Dependent Variable: ROA					

Table 2 shows a Durbin–Watson value of 1.561, which is in the range of 1.5–2.5, indicating that there is no autocorrelation between residuals. This means that the residual data between periods do not affect each other, so the regression model is considered reliable. This result is in accordance with the standard revealed by Safitri et al. (2021), that a Durbin–Watson value close to 2 indicates residual independence in the financial regression model. With the fulfillment of these three classic assumption tests, it can be concluded that the regression model meets all the requirements of BLUE (Best Linear Unbiased Estimator), so that the results of the next regression test can be validly interpreted.

Based on table 2 (Model Summary), the values of $R = 0.479$ and $R^2 = 0.230$ were obtained. This means that about 23% of the variation in bank profitability (ROA) can be explained by changes in operational risk (BOPO). While the remaining 77% is explained by other variables such as credit quality, asset structure, liquidity policy, and macroeconomic conditions that are not included in this model. These results show a moderate negative relationship between operational efficiency and profitability, which reinforces the view of Lestari and Setianegara (2020) that the

increase in BOPO tends to suppress bank profits due to the increasing burden of operating costs.

Table.3 F Test SPSS Output

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.018	1	.018	3.281	.097b
	Residual	.060	11	.005		
	Total	.077	12			
a. Dependent Variable: ROA						
b. Predictors: (Constant), BOPO						

From table 3 (ANOVA), the value of $F = 3.281$ with significance (Sig.) = 0.097 was obtained. Because the Sig. value is greater than 0.05, the regression model is simultaneously insignificant at a 95% confidence level. This means that together, BOPO has not been able to explain the variation of ROA strongly. However, a significance value close to the 0.05 limit indicates a significant relationship tendency at a 90% confidence level. This indicates that in the context of a fluctuating economy, operational efficiency does affect profitability, but the impact is not dominant.

A similar phenomenon was also found by Rachman et al. (2023) who stated that in the 2022–2023 period, most banks are still in the adaptation stage to digital systems, so cost efficiency has not been optimal in driving profitability.

Table.4 Output SPSS test t

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.881	.653		4.414	.001
	BOPO	-.015	.008	-.479	-1.811	.097
a. Dependent Variable: ROA						

Table 4 shows the results of the partial test showing that the value of the BOPO coefficient = -0.015 with t calculation = -1.811 and Sig. = 0.097 . A negative coefficient value indicates that an increase in BOPO leads to a decrease in ROA. This means that the greater the proportion of operating costs to revenue, the lower the bank's ability to generate profits. However, because the significance value is greater than 0.05 , this effect is not statistically significant. Thus, the hypothesis that "operational risk (BOPO) has a significant negative effect on profitability (ROA)" is rejected. These results support the findings Hidayati and Yudowati (2020) which found that the influence of BOPO on ROA is negative but not always significant, especially in periods of unstable economy. Factors such as digitalization, efficiency of scale, and cost policy are still intermediate variables that can strengthen or weaken the relationship.

The results of this study generally show that BOPO has a negative but not significant relationship with ROA. This means that increased operating costs tend to depress bank profitability, but the effect is not yet strong enough to be considered

statistically significant. In the context of post-pandemic economic recovery, this result is logical because banks are still in the stage of balancing digital technology investment and controlling operational costs. As explained by Pratiwi and Diana (2021), technology investment does increase long-term efficiency, but in the short term, it actually increases the cost burden which worsens the BOPO ratio.

In addition, the low variation in ROA (average of 1.70 with a small deviation) also indicates high stability of bank profits, so that changes in BOPO do not have a large fluctuating effect. This condition is in line with Sentika et al. (2023) who stated that during the economic recovery period, the profitability of banks in Indonesia is more influenced by macro factors such as the benchmark interest rate and monetary policy, rather than internal efficiency factors alone. Nevertheless, the negative direction of this relationship remains managerially important. This means that any increase in efficiency shown by the decrease in BOPO has the potential to increase the bank's profitability. This is in line with the principle of financial efficiency in banking intermediation theory (Lestari & Setianegara, 2020).

Thus, although the statistical results show an insignificant influence, the direction of the negative relationship still supports the theory that operational efficiency contributes to long-term profitability. Banks need to strengthen their operational risk management strategies through cost control and efficiency-oriented digital innovation. The results of the empirical analysis show that: The value of BOPO has a high average, indicating that operational efficiency is still the main challenge for banks. The ROA value is stable but relatively low, indicating that profitability has not grown optimally. The regression model showed a negative effect

of BOPO on ROA, but it was not significant at the 95% confidence level. The classical assumption of regression is fulfilled, so the results of the analysis can be considered valid.

In general, it can be concluded that in the period March 2022–March 2023, operational risks measured through BOPO had a negative but not significant effect on the profitability (ROA) of banks in Indonesia. These results show that cost efficiency is still a strategic issue in maintaining the bank's financial performance during economic recovery and digital transition.

5. Discussion

The results of this study show that operational risk (BOPO) has a negative but not significant effect on the profitability (ROA) of banks in Indonesia in the period March 2022–March 2023. Although the direction of the relationship corresponds to the theory of efficiency, the low level of significance suggests that increased operating costs have not yet become a dominant factor in determining a bank's profit. This indicates that during the economic recovery period, external factors and digital adaptation strategies also play a major role in the profitability of financial institutions.

Theoretically, these results support the concept of efficiency-profitability trade-off, where increased operational efficiency will have a positive impact on long-term profitability. However, the digital transformation process of banking actually caused a surge in initial investment costs, which increased the value of BOPO without immediately impacting ROA (Pratiwi & Diana, 2021). In this context,

digitalization being a double-edged sword on the one hand increases long-term efficiency, but on the other hand magnifies the short-term cost burden.

In addition, the low variation in ROA found in the descriptive results also suggests that most banks have high profit stability, despite facing operational cost pressures. This phenomenon is in accordance with the findings of Sentika et al. (2023), who stated that Indonesia's post-pandemic banking sector tends to hold back massive credit expansion and focus on internal process efficiency. This means that banks are able to maintain stable profitability even though the level of efficiency (BOPO) varies between periods.

From an empirical perspective, the R^2 value of 0.230 indicates that BOPO only explains 23% of the variation in profitability. This is in line with research by Islamiyah and Sukaris (2023), which states that bank performance is more influenced by a combination of asset quality, financing policies, and credit risk management than operational cost factors alone. Therefore, the insignificant results in this study do not mean that efficiency is not important, but it confirms that the effect is indirect and takes time to accumulate.

On the other hand, this study provides an overview that Indonesian banks are still in the recovery alignment phase, which is an effort to balance digital innovation and financial stability (Lestari & Setianegara, 2020). The relatively high BOPO in this period illustrates an increase in investment in technology infrastructure as well as adjustments to new digital regulations. In line with the opinion of Rachman et al. (2023), the 2022–2023 period is an important transition period in which banks need

to make structural efficiencies so that digital investment spending can be converted into increased productivity in the future.

From the regression results that show a negative coefficient value (-0.015), the direction of this relationship still supports the theory that the increase in operating costs will reduce profits, although it is not significant. Suryaningsih and Sudirman (2020) added that in the long term, operational efficiency plays a major role in maintaining banks' competitiveness amid digitalization pressures. Thus, the results of this study reinforce the view that operational risks must be managed strategically through cost efficiency, strengthening digital systems, and increasing asset productivity.

Based on the whole, this study confirms that although the influence of BOPO on ROA has not been significant, the direction of its negative relationship provides important implications for bank management. Efforts to reduce operational costs through targeted digitalization and adaptive risk control can increase profitability in the future. Therefore, the results of this study support the theory of financial efficiency and provide an empirical basis for operational risk management strategies in the modern banking digital era in Indonesia.

6. Conclusion

Based on the results of the analysis and discussion that has been conducted, it can be concluded that operational risk as measured by the ratio of BOPO (Operating Costs to Operating Income) has a negative but not significant influence on the bank's profitability as measured by ROA (Return on Assets) in the period

from March 2022 to March 2023. These results show that although the increase in operating costs tends to reduce profits, the effect is not statistically strong enough during the economic recovery period. In general, the level of operational efficiency of banks in Indonesia still needs to be improved because the high BOPO value indicates a large cost burden, while the stable but low ROA value illustrates profitability that is not optimal. This condition reflects that banks are in the phase of adapting to changes in cost structure due to digitalization and operational transformation. Thus, this study emphasizes the importance of effective operational risk management through improving cost efficiency, technology optimization, and strategic planning so that bank profitability can increase sustainably in the future.

References

- Amalia, S., & Nugraha, N. M. (2021). The impact of financial ratio indicators on banking profitability in Indonesia. *Turkish Journal of Computer and Mathematics Education*, 12(8), 580-588.
- Hidayati, T., & Yudowati, S. P. (2020). Analisis faktor-faktor yang mempengaruhi profitabilitas perbankan terbesar di Indonesia. *Jurnal Akuntansi Dan Ekonomika*, 10(1), 1-10.
- Islamiyah, D., & Sukaris, S. (2023, January). The Influence of Loan to Deposit Ratio, Operational Costs and Operational Revenue, Non Performing Loans on Profitability In Banking Companies Listed on The Indonesia Stock Exchange. In *Journal Universitas Muhammadiyah Gresik Engineering, Social Science, and Health International Conference (UMGESHIC)* (Vol. 2, No. 1, pp. 8-18).

- Lestari, W. D., & Setianegara, R. G. (2020). Analisis pengaruh nim, bopo, ldr, dan npl terhadap profitabilitas (Studi Kasus Pada Bank Umum Yang Listed Di Bursa Efek Indonesia Periode 2014-2018). *Keunis*, 8(1), 82-92.
- Otoritas Jasa Keuangan (OJK). (2023). *Statistik Perbankan Indonesia – Maret 2022-Maret 2023*. Jakarta: Otoritas Jasa Keuangan. Retrieved Oktober 20, 2023 From <https://ojk.go.id/id/kanal/perbankan/data-dan-statistik/statistik-perbankan-indonesia/Pages/Statistik-Perbankan-Indonesia---Maret-2022.aspx>
- Pratiwi, A., & Diana, N. (2021). Pengaruh Car, Npf, Dan Bopo Terhadap Profitabilitas Pada Bank Umum Syariah Di Indonesia Tahun 2015-2019. *JLAI (Jurnal Ilmiah Akuntansi Indonesia)*, 6(1), 55-72.
- Rachman, F., Muslim, A., & Widiastuti, M. C. (2023). Analisa Faktor-Faktor Yang Mempengaruhi Profitabilitas Bank Di Indonesia Yang Dimoderasi Oleh Ukuran. *JMBI UNSRAT (Jurnal Ilmiah Manajemen Bisnis dan Inovasi Universitas Sam Ratulangi)*, 10(3), 1741-1758.
- Safitri, J., Rahmati, A., Jayadi, J., & Affandi, M. A. (2021). Do liquidity and capital adequacy ratio matter for Islamic banks performance in Indonesia? An analysis using financing risk as mediator. *Share: Jurnal Ekonomi Dan Keuangan Islam*, 10(1), 138-154.
- Sentika, D. N., Yuliyanto, A., & Muna, A. (2023). Pengaruh modal intelektual dan manajemen risiko terhadap kinerja keuangan pada perusahaan perbankan yang terdaftar di BEI tahun 2019-2022. *Journal of Management and Digital Business*, 3(2), 103-118.

Suryaningsih, N. P. R., & Sudirman, I. M. S. N. (2020). The influence of credit risk, liquidity risk, and operational risk on profitability in rural banks in Bali Province. *American Journal of Humanities and Social Sciences Research*, 4(3), 258-265.