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# The effect of income on net profit of banks before and during the Covid-19 pandemic

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**Abstract**

During the Covid-19 pandemic, the banking sector experienced a decline in performance in terms of funding and lending. This downturn had significant implications on the income and net profit of banks, leading to operational challenges. This study aims to examine the effect of income on net profit before and during Covid-19 in State-Owned Banks (SOBs) in Indonesia. We included all existing SOBs in Indonesia, totalling 64 firms-quarterly observations during the period from 2018 to 2021. The research methodology involved regression analysis and a comparative study using Paired Sample Test. Our findings indicate that income has a significant impact on net profit. Furthermore, we demonstrate that there was no difference in bank income before and during the Covid-19 pandemic. However, there were variations in the net profit obtained by the banks. This phenomenon can be attributed to decreased interest margins as banks had to lower the interest rates on deposits without reducing the interest rates on loans.

**Keywords:** Covid-19; Income; Net profit; State-Owned Banks



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## 1. Introduction

The banking sector plays a pivotal role in advancing the economic well-being of society. Its function of aggregating funds from individuals with surplus capital and channeling them towards those in need stimulates productive utilization of societal funds, yielding goods and services. Banking businesses represent a dynamic subset of financial institutions that have witnessed rapid evolution. However, in early 2020, specifically in March, the global community, including Indonesia, faced the unprecedented phenomenon of the Covid-19 pandemic. The rapid proliferation of Covid-19 in Indonesia, coupled with escalating fatality rates, triggered multifaceted impacts spanning both public health and the global economy. As an integral component of the economic framework, the banking sector was not immune to its reverberations. Indonesia's initial perception that the Covid-19 virus would have a limited presence due to its

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hot climate proved to be a alarming situation. According to sources from www.covid19.go.id, Indonesia reported its first Covid-19 case in March 2020, which persisted until February 2022.

Amidst worsening conditions, the banking sector faced liquidity threats, rendering operational continuity and profit attainment increasingly challenging. Nonetheless, the overarching goal remained centered on generating substantial profit margins within banking (Trinugroho et al., 2018). Financial performance assessment serves as a tool to gauge a bank's profitability by comparing profits across specific years, encompassing pre-pandemic and post-pandemic periods. To anticipate financial challenges promptly, banks can implement strategies to enhance their performance and amplify profits. This hinges upon the bank's ability to forecast future business conditions and monitor potential factors influencing profitability (Islam & Nishiyama, 2016; Molyneux et al., 2019; Mutiara, 2022). Bank profitability serves as a crucial yardstick, pivotal for evaluating a bank's capability to fulfill its functions, sustain viability within the banking industry, and serve as a foundation for assessing overall bank performance. Profit represents the difference between revenues earned during a specific period and the costs incurred to generate that profit. Operational profit denotes the realized difference between revenues originating from transactions within a given period and the associated costs. Net profit stands as a comprehensive measure of overall profitability, enabling an evaluation of a bank's adequacy in capital utilization. While not all banks prioritize profit as their primary objective, it remains an indispensable component for both for-profit and nonprofit organizations to maintain their existence. Among the determinants affecting profit, income obtained during a particular accounting period holds significance (Mutiara, 2022; Suhaemi, 2021).

Income denotes revenue derived from financing activities, investments, or savings. It can be influenced by customer financing results, shaping a bank's target market. Continuous innovation is crucial for banks to meet customer demands, consequently enhancing bank profitability (Endri & Hurriyaturrohman, 2020; Nathasya & Setyawan, 2019). Income represents economic benefits gained during an accounting period through inflows or increases in assets or reductions in liabilities leading to augmented equity, unrelated to capital contributions. Monitoring income and expenses throughout operational activities is essential for a bank to achieve desired profits. If income surpasses expenses, the company attains profit; conversely, if expenses exceed income, the bank faces losses. A consistent rise in operational expenses compared to income over successive years can lead to diminishing profit generation capacity for the bank.

State-Owned Banks (SOBs) or locally known as Bank BUMN, derive their capital entirely from state-owned wealth, established under distinct legislation, including BRI, BNI, Bank Mandiri, and BTN. SOBs adhere to prudential banking principles, operating not only as financial service providers but also prioritizing prudence to safeguard customer assets. The overall performance of SOBs serves as a benchmark for Indonesian banks, shaping policies enacted by Bank Indonesia to regulate monetary activities.

Net profit serves as a metric of success for a bank and guides decision-making for management and investors alike. Income facilitates dividend prediction and serves as a foundational element for bank financial performance. The banking sector draws revenue from two sources: interest income and non-interest income (Pradopo, 2020). The interplay of income and expenses dictates net profit outcomes. Research by Lestari (2019) highlights a positive correlation between income and net profit in Bank Mandiri Indonesia Syariah. Putri (2021) demonstrates fluctuating financial performance for BRI Syariah before and during the Covid-19 pandemic, resulting in decreased profits. Similarly, Kulsum's study

(2022) reveals reduced profit growth during the pandemic period of 2019-2020 compared to pre-pandemic years 2017-2018.

This study aims to analyze the effect of income on net profit for SOBs in Indonesia and assess potential disparities in net income and net profit for banks before and during the Covid-19 pandemic. Income is chosen as a predictor variable due to its susceptibility to global economic pressures during the pandemic, surpassing the burden of expenses incurred by banks.

## 2. Method, Data, and Analysis

This research falls under the category of causal associative research, aiming to analyze the influence of income on net profit in State-Owned Banks (SOBs) both before and during the Covid-19 pandemic. The study collected financial report data from quarterly periods of SOBs for the years 2018-2021. The selected sample of banks included those listed on the Indonesia Stock Exchange (IDX): Bank Mandiri, BRI, BNI, and BTN. Secondary data was employed in the form of documentation, utilizing financial reports obtained from the Indonesian Stock Exchange (IDX) website for the specified SOBs during the 2018-2021 period. Based on the sample selection criteria, the dataset consisted of 64 observations.

The dependent variable in this study is net profit, representing the profit attained by a bank after deducting all operational expenses, non-operational costs, interest expenses, and taxes, or profit before tax minus tax expenses. The net profit formulation is as follows:

$$Net\ Profit = Profit\ before\ Tax - Tax\ Expenses$$

The independent variable in this study is income, encompassing all bank revenues derived from interest income and other operational revenues. The income formulation is as follows:

$$Income = Interest\ Income + Other\ Operational\ Revenues$$

The research analysis technique employs simple regression analysis to investigate the potential impact of income on net profit. The simple regression equation is as follows:

$$NP = \alpha + \beta.IC + \varepsilon$$

Where, NP = net profit; IC = income; $\alpha$ = constant; $\beta$ = regression coefficient

A t-test is conducted to determine the influence of income on net profit. This test assesses the partial significance of the relationship between income and net profit. If the significance level $\alpha < 0.05$, then income significantly affects net income. If the significance level $\alpha > 0.05$, then the independent variable does not significantly impact the dependent variable.

Furthermore, a paired sample t-test is employed to ascertain if there are differences between income and net profit before and after the Covid-19 pandemic. This parametric test is used to compare means between paired groups, implying that both data groups originate from the same subjects. If the two-tailed significance value < 0.05, a significant difference is present. Conversely, if the two-tailed significance value > 0.05, no significant difference is observed.

## 3. Results

### SOBs income before and during Covid-19 pandemic (2018-2021)

Income is an important factor in a bank because it is a measure of progress or decline of a bank. The greater the income, the bank is considered to have a better level of soundness, and vice versa. However, this amount of income often fluctuates due to changes in the macro economy. Likewise, the income earned by SOBs in Indonesia is shown in Figure 1.

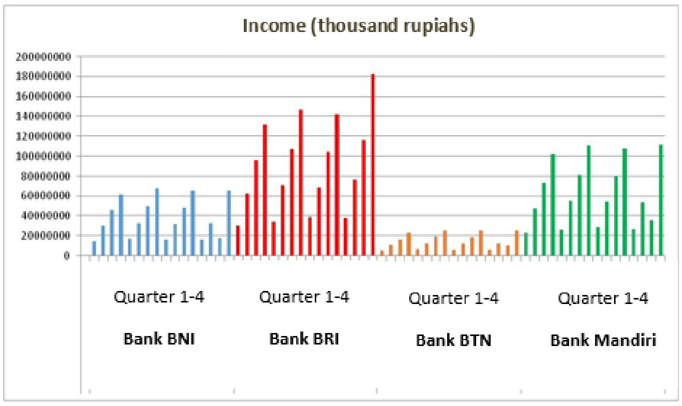


**Figure 1.** SOBs income before and during Covid-19 Pandemic (2018-2021)

### SOBs net profit before and during Covid-19 pandemic (2018-2021)

Operational profit is defined as the difference between realized revenue and arising from transactions during a period with expenses related to revenue. In this case income and profits are very closely related, where if a bank's income, then the bank's profits will be large and vice versa if the bank's income is small then the bank's profits will also be small (Abbas et al. 2019; Hao et al, 2023). The net profit growth during 2018-2021 is shown in Figure 2.

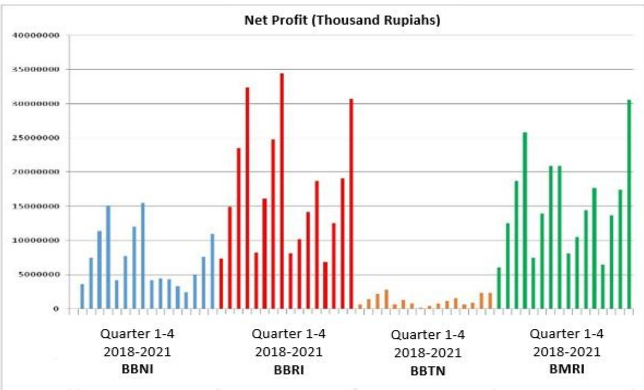


**Figure 2.** SOBs net profit before and during Covid-19 Pandemic (2018-2021)

Based on Figure 2, the total net profit before and during Covid-19 at BNI 2018 bank increased in quarter 1 to quarter 3 then decreased in quarter 4. Then in 2019 it experienced an increase in quarter 1 to quarter 4. Meanwhile in 2020 the bank's net profit BNI experienced a decline from quarter 1 to quarter 4. Meanwhile at Bank BRI and Bank Mandiri from 2018 - 2021 in quarters 1 to quarter 4 experienced an increase. Meanwhile at Bank BTN in 2018, 2020 and 2021 there has been an increase from quarter 1 to quarter 4 but in 2019 it has decreased in quarters 1, 3 and 4 and has increased in quarter 2.

### Descriptive Statistical Test

Descriptive data in this study for bank income and net profit are shown in the statistical test results in Table 1.

**Table 1**.
Descriptive Statistic

| Variable | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Income | 64 | 5.278.272 | 182.380.591 | 51.858.541 | 40682060 |
| Net Profit | 64 | 209.263 | 34.413.825 | 10.433.290 | 8897402.809 |

Based on Table 1, it can be seen that there are 64 data (N), originating from 4 banks listed on the IDX for the period 2018 to 2021. For income, it shows a maximum value of 182,380,591 and a minimum value of 5,278,272 with an average income of 51,858. 541 and with a standard deviation of 40682060. These results indicate that the standard deviation value is greater than the average value. This shows that the income variable data has high variability. The net profit variable shows a maximum value of 34,413,825 and a minimum value of 209,263 with an average profit of 10,433,290 and a standard deviation of 8,897,402,809. These results indicate that the standard deviation value is greater than the average value. This shows that the net profit variable data has high variability.

## Classical Assumption Test

Classical assumption testing is done by testing data normality, heteroscedasticity, and autocorrelation. The results of the normality test show that the data spreads along each diagonal line and follows the direction of the diagonal line, so it can be concluded that the net profit and income variables fulfill the normality test or are normally distributed. The results of the autocorrelation test show that the Durbin Watson test is 0.750. This value will be compared with the table value, using a significant value of 0.05. The amount of data (n) = 64 and the number of independent or independent variables (k) = 1, then du = 1.6505. So (4-du) = (4-1.6505) = 2.3495. Because the Durbin Watson value is 0.750, which means it is smaller than the du limit of 1.6505 and less than (4-du), which is 2.3495. This means that there is no autocorrelation in this regression model.

## Simple Regression Analysis

This study uses a simple linear regression analysis model which aims to find out whether income affects net profit before and during Covid-19 for the 2018 – 2021 period. The results of the data processing can be seen in Table 2.

**Table 2.**
Simple Regression Test Results

| Variable | Beta | S.E | Prob. | Significance |
|---|---|---|---|---|
| Constant | -5.632 | 1.526 | -3.691 | 0.000 |
| Income | 1.220 | 0.087 | 13.952 | 0.000 |

Dependent variable: Net profit

Based on Table 2, it shows that the significant value of income on net profit is 0.000 <0.05 and the t-count value is 13.952 > 0.0004, which means that there is an effect of income on net profit. The regression coefficient (beta) shows 1,220 which means that income has a positive effect on net profit, the higher the income earned by the bank, the net profit will increase.

## Paired Sample t-Test

To find out whether there is a difference in the mean between the independent variables, the paired sample t test of difference can be used which is presented in Table 3.

**Table 3.**
Paired Sample t-Test Results

| Difference Test | Mean | Std. Deviation | Std. Error Mean | t | Sig (2-tailed) |
|---|---|---|---|---|---|
| Income Before - During Covid-19 | -1.169E6 | 1.269E7 | 2242496.648 | -0.521 | 0.606 |
| Net Profit Before - During Covid-19 | 2.619E6 | 4402159.855 | 778199.271 | 3.365 | 0.002 |

From Table 3 it is known that the significance value obtained was 0.606 which means that it is greater than the significant level of 5% or in other words the significant value obtained was 0.606 > 0.05 so it can be concluded that there was no difference in income before and during Covid 19, then for net profit a significance value of 0.002 is obtained, which means it is smaller than the significant level of 5% or in other words the significant value obtained is 0.002 <0.05 so it can be concluded that there is a difference in net profit before and during Covid 19.

## 4. Discussion

### The effect of income on net profit

Income refers to the inflow of assets resulting from the provision of goods and services by a company during a specific period. Typically, income is recognized when the sale of goods and services occurs, coinciding with the certainty of revenue measurement based on received assets. Net profit represents the change in equity of an entity between two distinct time points, excluding changes caused by investments and distributions to owners, where equity is expressed in value and based on a specific scale. Net profit arises from transactions involving revenue, expenses, gains, and losses.

The research findings indicate that income significantly influences net profit in State-Owned Banks (SOBs). This demonstrates that a higher level of income corresponds to greater net profit for the bank. Assuming that income rises and expenses decrease, the bank will generate net profit; conversely, if income declines and expenses increase, net profit will not be achieved. The indirect impact of income on net profit can also influence other variables pertinent to a company's financial statements. It is well-known that revenue plays a crucial role in supporting various operational aspects of a bank. If operating revenue is smaller than other operational costs, the company will experience losses, and vice versa (Mehzabin et al., 2022). The magnitude of revenue requires attention from banks to ensure desired profit and business continuity. Banks can enhance productive asset additions according to needs and maximize utilization of total assets in banking activities, leading to increased net profit. Moreover, banks must elevate their revenue generation to achieve optimal net profit growth (Abbas et al., 2019).

Bank revenue stems from various activities such as interest income, accounts receivable, sales, and cash receipts. Interest income is measured as the amount of interest income documented in the income statement. The intended income encompasses interest income combined with other operational revenues, including fees and commissions, redemption of written-off assets, bond proceeds, and gains from foreign currency transactions. Net profit in this context refers to pre-tax profit minus tax expenses. For example, if bank interest income and other operational revenues decline while tax expenses increase, the bank's net profit will decrease. Conversely, if interest income and other operational revenues increase while tax expenses decrease, the bank will experience higher net profit. If both interest income and other operational revenues, as well as tax expenses, rise and fall in tandem, the bank will neither obtain net profit nor incur losses (Ghazouani & Basty, 2021). This research is supported by previous studies by Hunjra et al. (2020) and Mehzabin et al. (2022), signifying that an increase in income leads to an elevation in net profit.

**Difference in income and net profit before and during Covid-19**

The research findings regarding State-Owned Banks' income indicate no significant difference in income before and during the Covid-19 pandemic. This is attributed to the effective management of both bank income and expenditures during the pandemic, which allowed the SOBs to maintain a consistent net profit. Thus, this study reveals that the banking industry owned by state has successfully sustained stable and secure income levels during the Covid-19 era. These results align with Said & Agustina's research (2021), which similarly found no variance in income and financial performance for Bank Perkreditan Rakyat (BPR) before and during the pandemic. However, these findings contrast with Khoiriyah's study (2022), which identified differing profitability performance for banks before and during the Covid-19 pandemic. Khoiriyah's findings suggested that profitability increased before the pandemic and declined during it. These divergent outcomes highlight potential segmentation and differentiation within the banking sector. Notably, SOBs have demonstrated effective operations, particularly during periods of economic recovery. Mitigating risk, SOBs provided stimuli such as financing relaxation and customer repayment relief to maintain banking system stability.

The research results concerning net profit indicate a modest, yet insignificant, decline post-Covid-19. It can be assumed that certain periods experienced net profit gains due to expanded bank profit margins, despite decreased deposit interest rates, while credit interest rates remained relatively stable. Conversely, there were times when net profit declined due to a drastic reduction in loan interest income. This phenomenon can be attributed to the considerable number of loan relaxations and restructurings during the pandemic. These findings are supported by Kulsum (2022) and Aini et al. (2022), who similarly documented profitability disparities before and during the pandemic. The research's statistical analysis reveals variations in net profit pre and post-pandemic. As commonly understood, banks attain profit when income surpasses expenses.

The absence of income disparity between the pre and post-pandemic periods, coupled with observed net profit differences, suggests that SOBs effectively maintained their income streams during the pandemic. However, they may not have adequately minimized expenses or costs, resulting in the observed net profit variations. This scenario implies that while income remained resilient during the pandemic, cost management strategies may need further refinement. This balance between income and expenses is crucial for overall profitability.

These findings suggest that SOBs were capable of sustaining their core business operations and customer base throughout a challenging period, as evidenced by the consistent income levels. Conversely, the net profit differences before and during the pandemic highlight broader changes in overall bank profitability. Several factors may contribute to this variation, including increased operational costs due to health and safety measures, remote work arrangements, or heightened provisions for potential loan defaults. Moreover, some specific income streams may have been negatively affected due to decreased customer transactions. The pandemic-induced economic hardships could have led to higher loan loss provisions, reflecting increased credit risks. In navigating these challenges, banks must maintain strong financial health and resilience to face an uncertain future.

## 5. Conclusion

The purpose of this study is to examine the relationship between income and net profit, as well as to test the differences in income and net profit before and during the Covid-19 pandemic in SOBs during the first until fourth quarters of the years 2018-2021. The research findings indicate that there is a positive influence between income and net profit both before and during the Covid-19 pandemic. Additionally, this study demonstrates that there is no significant difference in income before and during the Covid-19 era. This can be attributed to the effective management of income by BUMN banks. However, the relaxation and restructuring of loans during the pandemic have led to differences in net profit before and during Covid-19. SOBs have succeeded in maintaining their income during the pandemic. Nevertheless, banks have faced challenges in controlling expenditures and adapting to changing economic conditions, resulting in variations in net profit compared to the pre-pandemic period. The ability of banks to navigate these challenges will be crucial in maintaining financial health and resilience in the face of uncertainty in the future.

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