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Effect of PNBP Policy on the Financial Performance of Cellular Mobile Network Operators

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Abstract

Digital transformation is one of the programs initiated by the Government, which in practice requires the support of healthy mobile network operators through financial performance indicators, in order to fulfill the development of telecommunications infrastructure in all regions. Mobile network operators require significant capital to provide telecommunications infrastructure, including payment of Non-Tax State Revenue (PNBP) to the government every year, which continues to increase due to frequency allocation and telecommunications activities. The aim of this research is to measure the estimated influence of PNBP policy on the financial performance of mobile network operators in Indonesia while considering several other control variables such as investment costs (CAPEX), number of subscribers, liabilities, number of base transceiver stations (BTS), and number of mobile network operators. This research uses panel data regression with a fixed effect model approach, covering four mobile network operators from 2010 to 2022. The results show that PNBP, sourced from the obligation to pay Spectrum Frequency Usage Fee, has a significant negative impact on financial performance. These findings are also consistent with the research conducted by Katz and Jung (2023)..

INTRODUCTION

The increasing penetration of mobile broadband has been found to have a positive relationship with the growth of Gross Domestic Product (GDP). Previous studies, such as the one conducted by Stork and Esselaar (2020), based on ITU research in 2013 and 2020, have shown that there is potential additional GDP growth in countries that experience a higher penetration of mobile broadband. This growth can range from 0.8% to 2.46% for every 10% increase in mobile broadband penetration. As a result, the telecommunications sector, including in Indonesia, plays a crucial role as a contributor to the national GDP.

However, increasing mobile broadband penetration through the deployment of mobile network infrastructure requires substantial investment. Grijpink et al. (2018) have highlighted the significant capital required for the provision of telecommunications and digital infrastructure, particularly the

installation of Base Transceiver Stations (BTS) with a minimum 4G/LTE technology coverage across the entire territory.

In Indonesia, the responsibility for mobile network deployment lies entirely with private entities, operating under licenses issued by the government in accordance with telecommunications regulations. This includes the allocation of radio frequency spectrum, which is vital for supporting the telecommunications needs. To regulate and supervise the telecommunications industry, the Ministry of Communication and Information Technology has implemented policies that impose certain levies categorized as Non-Tax State Revenue (PNBP). These levies are required to be paid annually by mobile network operators.

The PNBP contributions that mobile network operators must pay have been increasing in comparison to the industry's gross revenue. By 2022, PNBP had reached 12.2% of the industry's gross revenue. For some operators, the burden of PNBP as a percentage of gross revenue has even reached 18% and, in certain cases, peaked at 23%.

The financial burden of PNBP has become increasingly challenging for telecommunications providers. Instances have occurred where providers accumulated significant debts and failed to fulfill their PNBP obligations. Consequently, the government revoked their frequency usage rights and telecommunications permits due to non-payment within the specified timeframe. In 2015, a telecommunications provider had a debt of 1.2 trillion Indonesian Rupiah and did not make the required PNBP payments. Similarly, in 2018, two providers failed to pay PNBP amounting to 700 billion Indonesian Rupiah, as reported in the Ministry of Communication and Information Technology's Press Release number 299/HM/KOMINFO/11/2018. Furthermore, in 2021, there was a provider who did not fulfill PNBP obligations amounting to 477 billion Indonesian Rupiah, as stated in the Press Release number 418/HM/KOMINFO/12/2021.

Given the background and the aforementioned issues, this study aims to investigate the impact of PNBP policies on the financial performance of mobile network operators in Indonesia. Specifically, it seeks to determine whether there is a significant effect and identify other potential factors such as the number of subscribers, number of BTS, amount of CAPEX, ARPU, liability, and the number of operators that may influence the financial performance of mobile network operators. By addressing these research questions, this study aims to provide insights into the relationship between PNBP policies and the financial performance of mobile network operators in Indonesia..

Theoretical   Review

Financial Performance

Financial performance refers to the measurement and evaluation of the financial health of a company or business entity. It encompasses various financial metrics and ratios used to analyze and assess financial performance. Within the context of Financial Accounting Standards (PSAK), which are based on the International Financial Reporting Standards (IFRS), financial standards include the use of

terminology such as Gross Revenue, Net Profit, and Earnings Before Interest, Taxes, Depreciation, and Amortization (EBITDA) in income calculations.

EBITDA is a commonly used financial metric for evaluating profitability and financial performance of companies. It is one of the most important metrics for determining profitability and predicting future industry growth. EBITDA is calculated by taking a company's revenue and subtracting the cost of goods sold and operating expenses, excluding interest, taxes, depreciation, and amortization. This calculation provides a measure of a company's operating profitability before the impact of non-operational costs and financing activities. EBITDA is widely used by analysts as a performance measure of a company's core operations.

Additionally, EBITDA is a popular financial metric often used to report a company's performance. It serves as a hybrid financial concept that combines elements of revenue and cash flow. EBITDA is a suitable metric to present when management wants to provide a better overview of the company's performance. It allows for evaluating a company's performance without considering financing decisions, accounting choices, or tax obligations. Furthermore, the use of EBITDA is particularly beneficial for companies with long-lived assets.

In a study conducted by Octasylva (2020), it was concluded that the mobile network operator industry in Indonesia operates in an oligopoly market. In an oligopoly market, normal profits occur when Total Revenue (TR) is greater than Total Cost (TC). Therefore, if there is an increase in average costs due to the rise in PNBP expenses that must be paid by the operators, it will reduce their profits. In fact, if TR is equal to TC, the company will not generate any profit or break even. However, it should be noted that there may be some additional marginal revenue generated from the acquisition of radio frequency spectrum and the permission to operate mobile networks. These PNBP expenses arise from the use of resources and the provision of licensing services by the government.

Financial Performance and Other Influencing Factors

Average Revenue Per User (ARPU)

Average Revenue Per User (ARPU) can have a significant impact on a company's financial performance. ARPU is commonly used by regulators and industry observers to assess the performance of mobile network operators, as it directly affects a company's revenue. A higher ARPU indicates higher revenue generated per user. By increasing ARPU, companies can enhance their overall revenue.

Number of Infrastructure (BTS) in Mobile Network Deployment

The number of Base Transceiver Stations (BTS) can be optimized by mobile network operators to generate new revenue streams. This revenue is closely related to financial performance and the financing of new infrastructure development. Consolidating BTS infrastructure not only helps meet quality targets but also results in capital and operational cost savings, which impact a company's financial performance.

Capital Expenditure (CAPEX)

Capital expenditure (CAPEX) has a significant influence on profit levels. Increasing CAPEX can lead to a substantial improvement in profitability, as demonstrated by research conducted on publicly listed manufacturing, telecommunications, and oil companies in Indonesia between 2012 and 2016

Number of Mobile Network Operators

The increase in the number of telecommunications companies and/or competition stimulates research and development investments in the telecommunications industry, contributing to industry and economic growth. This, in turn, can be reflected in financial performance. The mobile network operator industry has experienced rapid growth over time due to privatization and dynamic competition, exemplified by companies like Apple and Samsung (Cecere et al., 2015)

Subscribes

The number of subscribers can impact a company's financial performance as it directly affects revenue. Consistent growth in the number of subscribers can significantly increase revenue. However, according to GSM Intelligence data in 2022, the number of subscribers in Indonesia has reached 370 million, exceeding the country's population. As a result, competition among providers to attract subscribers from other telecommunications providers or reduce churn has intensified. Providers must make every effort to retain their customers as customers are key to profitability (Christopher et al., 1991)

Number of Liabilities

The number of liabilities, such as short-term and long-term debts, can have an impact on a company's financial performance. Liabilities, particularly interest-bearing debts, require periodic interest payments. These interest payments can reduce a company's net income and affect its profitability. The higher the number of liabilities, the greater the burden of interest payments borne by the company. If a company acquires assets using debt without considering their size and purpose, it can have a negative impact on the company's performance (Sadeghian, et. al., 2012)

PNBP Policy in Indonesia

In addition to taxes, one of the factors that can contribute to increased costs in the telecommunications sector and potentially impact the growth of the telecommunications industry is the obligation to pay Non-Tax State Revenue (PNBP). The regulations regarding Non-Tax State Revenue (PNBP) are stipulated in Law Number 9 of 2018 concerning Non-Tax State Revenue ("Law No. 9 of 2018").

According to the regulations, PNBP refers to fees paid by individuals or entities that directly or indirectly benefit from services or the utilization of resources and rights provided by the state. PNBP significantly contributes to the overall state revenue. Data from the Ministry of Finance indicates that PNBP accounted for approximately 17.47%, 17.3%, and 17.1% of the state's revenue during the period from 2018 to 2021, based on the set targets for each year.

In the deployment of Mobile Network Infrastructure, the government, through the Ministry of Communication and Information Technology, allocates the use of Radio Frequency Spectrum and grants Operating Licenses to industry players. Consequently, there is an obligation to pay PNBP in the

Mobile Network Infrastructure Industry. Based on the relevant regulations, both the utilization of natural resources and the granting of licenses can be subject to PNBP imposed by the government.

Tabel 1. Types of PNBP at the Ministry of Communication and Information Technology

Type of PNBP	PP 7/2009 dan PP 76/2010	PP 80/2015
Telecommunication License	1% x Gross revenue	0.5% x Gross revenue
	0.75% x Gross revenue	1.25% x Gross revenue
BHP IPFR / Frequency Fee	Calculated using the formula	Calculated using the formula

Source : Government Regulation Number 80/2015

Mobile Network Operator Industry in Indonesia

Mobile broadband networks, a form of telecommunications technology, have been extensively researched for their impact on economic growth. According to the Neoclassical Economic Growth theory, which emphasizes the importance of capital, labor, and technology in economic development, mobile broadband networks play a significant role. This aligns with the modified Solow model by Colecchia and Schreyer (2002), which suggests that economic growth is influenced by factors such as capital, labor, human capital, and the inclusion of ICT variables (Ramdani, 2015).

Currently, Indonesia has a mobile phone penetration rate of only 63%, based on ITU data from 2020. This indicates a considerable untapped market potential for mobile network operators, particularly in areas that are currently underserved due to inadequate telecommunications infrastructure. To address this, concrete and challenging steps need to be taken to support digital transformation programs.

Furthermore, Indonesia's telecommunications teledensity reveals that only 98% of the country's territory is covered by cellular networks, leaving approximately 2% of areas (around 12,548 villages based on Kominfo data) without access to mobile broadband services. With a healthy business environment, the development of Indonesia's telecommunications sector will continue, focusing on bridging the gap in the remaining 2% of areas that lack cellular network coverage.

However, when the telecommunications industry, particularly mobile network operators, faces challenges or an unhealthy state, their ability to invest in economically unviable areas diminishes. Operators tend to prioritize development and services in economically viable regions, considering the annual costs involved. In such circumstances, the responsibility falls on the government to provide adequate facilities, including telecommunications and information services, to all citizens, including the 12,548 villages currently without network coverage

METHOD

This study utilizes panel data from four mobile network operators, spanning from 2010 to 2022. The data is obtained from Annual Reports (Info Memo, Corporate Presentation) of XL, IoH, Telkomsel, and Smartfren, as well as Financial Reports from XL, IoH, Smartfren, and Telkom.

Before conducting regression analysis, the multicollinearity test is performed to evaluate the level of correlation or linear relationship among two or more independent variables in a regression model (Ghozali, 2016). One commonly used method to test multicollinearity is the Variance Inflation Factor (VIF). VIF measures the extent to which the variability of one independent variable can be explained by other independent variables in the regression model. The threshold values used are a tolerance level of 0.10 or VIF values above 10, ensuring that all variables to be analyzed do not exhibit multicollinearity.

The regression analysis will be conducted using the following equation model:

$$LnYEBITDAit = \beta0 + \beta1LnBHPFit + \beta2LnTUSOit + \beta3LnCAPEXit + \beta4LIABit + \beta5ARPUit + \beta6CBit + \beta7BTSit + \beta8JOPRit + eit.$$

Explanation :

i = 1, 2….n (Operator)

t = 2010, 2011,…..t (Year)

LnEBITDA   = Natural logarithm of EBITDA

LnBHPF = Natural logarithm of BHP Frekuensi (Frequency BHP)

LnTUSO = Natural logarithm of BHP Telekomunikasi and KPU USO

LnCAPEX   = Natural logarithm of Capital Expenditure

LnASET = Natural logarithm of Total Assets

LnLIAB   = Natural logarithm of Total Liabilities

LnARPU = Natural logarithm of Average Revenue Per User

LnCB   = Natural logarithm of Customer Base

LnBTS   = Natural logarithm of Number of BTS Infrastructure

LnJOPR = Natural logarithm of Number of Mobile Network Operators

$\beta0$ = Constant

e = Error for the observation i in time period t

In this study, three models will be used for regression analysis of panel data: Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The selection of the best model among these three can be determined using the Chow test, Hausman test, and Breusch and Pagan Lagrangian Multiplier (BP-LM) test.

In the analysis model, EBITDA of mobile network operators will be the dependent variable, while the PNBP obligations from BHP Frekuensi Radio and PNBP from BHP Telekomunikasi and KPU USO will be the independent variables. The control variables will include the amount of investment budget, liabilities, ARPU, number of customers, number of BTS infrastructure, and number of operators.

RESULTS AND DISCUSSION

Descriptive Statistics

Tabel 2 . Descriptive statistics

Variable	Obs	Mean	St.Dev	Min	Max
EBITDA	52	Rp. 16,2 Trillion	16, 6 Trillion	Rp 1,2 Trillion	Rp. 53,6 Trillion
PNBP BHPF	52	Rp. 2,7 Trillion	Rp. 1,9 Trillion	Rp, 21,3 Trillion	Rp. 7,3 Trillion
PNBP TUSO	52	Rp. 587 Billion	Rp. 540 Billion	Rp. 6,6 Billion	Rp. 2 Trillion
CAPEX	52	Rp 7,6 Trillion	Rp. 3,8 Trillion	Rp. 326 Billion	Rp. 16,7 Trillion
Liabilities	52	Rp. 33,2 Trillion	Rp. 16,6 Trillion	Rp. 4.6 Trillion	Rp. 82, 2 Trillion
ARPU	52	Rp. 32 Ribu	8.638	11.600	45.900
Subscribers	52	71.817.758	52.917.818	2.273.000	196.322.005
BTS	52	79.215	69.107	1.654	265.194
Operator	52	7,1	2,1	4	10

These descriptive statistics provide an overview of the data collected from annual reports, financial statements, company presentations, and media news from mobile network operators during the period 2010-2022.

All variables used in this study exhibit different and scattered data variations, as indicated by the relatively high standard deviations among operators throughout the research period. This can also be observed from the significant differences between the mean values and the minimum/maximum values of each research variable from the 52 observed data points. Additionally, the range between the maximum and minimum values is also substantial, reflecting varying financial and operational performances among different operators.

Data Tabulation

Based on the data from 2010 to 2022, the overall EBITDA of the mobile network operator industry increased by 5.2%. However, in the last six years, the growth rate was only around 2.9%, indicating a decrease in percentage growth. On the other hand, the contribution of PNBP from BHP Frequency Spectrum increased by 10.7% during the same period. The ratio consistently increased from 11% in 2010 to 21% in 2022.

The same trend can be observed for PNBP from Telecommunication and USO BHP, which increased by 4.3% over the research period but still lagged behind the growth rate of EBITDA. The ratio decreased from 3.7% in 2010 to 3.3% in 2022, with an average annual growth rate of 5.7%, still below the average EBITDA growth rate of around 6%.

In terms of operator performance comparison, Telkomsel had a Compound Annual Growth Rate (CAGR) of 5.1% for EBITDA, 5.7% for Telecommunication and USO BHP, and 7.3% for Frequency Spectrum BHP. Indosat experienced EBITDA growth of 5.6%, 7.4% for Telecommunication and USO BHP, and 12.3% for Frequency Spectrum BHP. XL's EBITDA grew by 3.3%, with a decline of 4.1% for Telecommunication and USO BHP and an increase of 11.9% for Frequency Spectrum BHP. Smartfren showed a significant EBITDA growth rate of 19.2%, accompanied by a 17.6% increase in Telecommunication and USO BHP and a 21.7% increase in Frequency Spectrum BHP.

Regression Estimation

Based on the results of the Chow test and Hausman test, the fixed effect model (FEM) was selected. The FEM output yielded a coefficient of determination or R-squared value of 0.8551, indicating that the independent variables collectively explain 85.51% of the variation in the dependent variable, while the remaining 14.49% is influenced by other variables outside the current model.

In terms of simultaneous testing or F-test (Prob > F), the FEM yielded a result of 0.000. This value is smaller than the significance level (α) used in this study, which is 5% or 0.05. Therefore, it can be concluded that the independent variables collectively have a significant influence on the dependent variable.

Tabel 3. Regression result from Fixed Effect Model (FEM)

	Model 1 lnEBITDA	Model 2 lnEBITDA
lnBHPF	-0.206 (0.157)	-0.852*** (0.000)
lnTUSO	0.867*** (0.001)	0.206 (0.496)
lnLIAB		0.148 (0.661)
lnCAPEX		-0.144 (0.552)
lnARPU		1.400** (0.008)
lnCB		1.054* (0.017)
lnBTS		0.375 (0.166)
lnJOPR		-0.294 (0.602)
_cons	12.42** (0.004)	11.22 (0.303)
N	52	52
R-sq	0.8598	0.8551
p-values in parentheses * p<0.05, ** p<0.01, *** p<0.001		

Discussion

Based on the regression results, it is concluded that the BHP Frequency Radio has an impact on EBITDA, which is a financial performance indicator in this study. An increase of 1% in PNBP obligations from BHP Frequency Radio will decrease EBITDA by 0.85%. This finding is important for the government in determining future policies, considering that PNBP imposed on mobile network operators is mostly a fixed cost component, especially the PNBP paid for the use of radio frequency allocation in mobile network operation. The amount of PNBP is determined by regulations, including

the duration of the granted license, and cannot be reduced as long as there is no return of radio frequency allocation to the government. Additionally, based on the research data, the growth rate of the BHP Frequency is 11%, which is higher than the gross revenue growth rate of 5.9% and the EBITDA growth rate of around 5.2% during the period of 2010-2022.

The cost of the BHP Frequency is included in the routine operational costs that mobile network operators have to pay and is also considered in the calculation of EBITDA. EBITDA is a measure of a company's operational performance that provides an overview of profitability before considering interest, taxes, depreciation, and amortization. Therefore, the impact of PNBP from the BHP Frequency on EBITDA can be broadly categorized into two aspects:

a) Decrease in EBITDA: If mobile network operators have to pay significant PNBP, it directly reduces the company's EBITDA. These costs are considered operational expenses and are deducted from the company's revenue when calculating EBITDA. The higher the BHP Frequency, the lower the EBITDA.

b) Indirect impact on EBITDA: The cost of the BHP Frequency can indirectly affect EBITDA through its influence on the overall revenue and operational costs of the company. For example, if a company's profitability heavily relies on the utilization of radio frequency spectrum, an increase in the BHP Frequency can lead to higher operational costs and potentially affect the company's pricing strategy. This, in turn, can impact the company's revenue and EBITDA.

Furthermore, a study conducted by GSMA (2022) also concluded that high spectrum costs reduce the funds available for investment and have a negative impact on quality, speed, and coverage. All of these factors directly or indirectly affect the financial performance, represented by EBITDA.

Additionally, a study by Coleago (2019) mentioned that in order to enter the era of the fourth industrial revolution, spectrum policies and prices need to be calibrated to encourage the timely implementation of 5G technology. Considering that the revenue of mobile network operators tends to be stagnant and the implementation of 5G technology is not expected to significantly increase revenue, if the current reference prices are not reduced in determining PNBP, the allocation of new frequency bands offered by the government in the coming years due to the demand and availability of new frequency allocations may potentially result in additional PNBP for the government and will also become an operational burden for mobile network operators.

Regarding the PNBP from the operating license, particularly in Model 1, it also had a significant impact. If the obligations increase, it will increase the financial performance. Theoretically, this component of PNBP is considered an expense that will reduce revenue. However, because PNBP is imposed to enable network operators to carry out their business activities, and PNBP is generated from the services provided by the government through the granting of licenses, as long as the imposed costs do not exceed the revenue generated by the operators, these costs can still be tolerated. In the data tabulation, it is also shown that the contribution growth of the licensing PNBP during the research period was only 4.3%,

which is below the EBITDA industry growth rate of around 5.2% or the gross revenue growth rate of 5.9% during the research period.

Furthermore, in analyzing the industry data, it can be observed that the growth or decline pattern each year is not always the same. For example, when EBITDA experiences positive growth, it does not always mean that the burden of licensing PNBP also experiences positive growth. This can be seen in years such as 2013, 2017, and 2019 when EBITDA experienced positive growth while the licensing PNBP experienced negative growth. However, there is no consistent pattern of EBITDA and licensing PNBP growth or decline for each year when examining the data for each operator..

The growth of PNBP obligations for the use and allocation of radio frequency spectrum, which is an annual cost component of mobile network operator operations, has exceeded the growth of the benefit value represented by EBITDA. Therefore, if this trend continues based on its historical growth, it will increasingly burden the operators as it erodes the net benefit value they will receive in the future. On the other hand, the PNBP obligations derived from the operating licenses, which also constitute annual cost components of mobile network operator operations, have a growth rate that is still below the growth of the benefit value (EBITDA). Hence, they have not yet become operational burdens

Tabel 4. Benchmarking

Country	Annual Spectrum Fee	Bandwidth
Indonesia	> 10% from industry revenue	452 MHz
Finlandia	1,4% from industry revenue	990 MHz
Germany	9,7% from industry revenue	1049 MHz
Singapore	6,8% from industry revenue	639 MHz
UK	8,4% from industry revenue	775 MHz
India	18,5% from industry revenue	2308.80 MHz
Niger	14% from industry revenue	480 MHz
Bukirna Faso	10% from industry revenue	480 MHz
Sao Tome & Principe	10% from industry revenue	480 MHz
Togo	8% from industry revenue	480 MHz
Tunisia	5% from industry revenue	480 MHz
Egypt	8% from industry revenue	480 MHz
Mali	6% from industry revenue	480 MHz
Gabon	5% from industry revenue	480 MHz
RD Congo	4% from industry revenue	480 MHz
Mozambique	4% from industry revenue	480 MHz

Sources : GSMA (Negara Afrika) Coleago (Finlandia, Germany, Singapore, UK, India)

If compared to benchmarks in other countries, the amount of PNBP derived from BHP Spectrum Frequency and BHP Operational Permits in Indonesia is considered high, as shown in Table 4 for BHP Frequency and Table 5 for BHP Operational Permits. For BHP Frequency in Indonesia, since 2021 it has reached 10% of the industry's revenue and is only paid for a bandwidth allocation of 452 MHz. When compared to several countries in Africa with the same percentage, Indonesia is still more

expensive because in Africa, the allocated bandwidth is wider, at 480 MHz, including India where the percentage of frequency costs is 18.5% of the industry's revenue, but it is obtained from the allocation of 2308 MHz, which is 5.1 times larger than the allocation of bandwidth in Indonesia.

Tabel 5. BHP Operational Permits

Country	Benchmarking value
Indonesia	1.75% of the total gross revenue of the operator
Argentina	1.5% of the total net revenue of the operator
Brazil	Percentage of the total net revenue of the operator
Colombia	0.1% of the total gross revenue of the operator
Austria	Percentage of the total net turnover of the operator
Netherland	0,03672% of the relevant turnover
Polandia	0,05 of the operator's revenue
UK	0,0872% of the operator's turnover
Saudi Arabia	11% of the net telecommunications revenue
Singapore	0.5% - 1% per year of the gross revenue
South Africa	Between 0.15% and 0.35% of the telecommunications operator's revenue

Sumber : DLA Pipper (2023)

Based on the benchmark of PNBP amounts derived from Operational Permits in Table 5, the charges imposed in Indonesia are relatively high. Only Saudi Arabia applies a higher charge of 11%, but it is calculated based on net revenue, which means there is no charge if the net revenue of the operator is equal to or less than zero. Therefore, based on this information, even though the burden of PNBP Operational Permits is currently below the growth rate of EBITDA in Indonesia, the government should consider policy changes based on the implementation in other countries, especially if the industry's growth rate continues to decline.

In general, the findings of this research, particularly regarding PNBP derived from the use of Radio Frequency, align with the results of studies conducted by Katz and Jung (2023), which concluded that there is a negative impact on investment from increased regulatory costs using taxes as an independent variable. It is also consistent with the research conducted by GSMA in 2020 and 2022, as well as the study by Coleago (2019), which described the negative impact of increased spectrum fees on industry development and growth.

The regression analysis also revealed that an increase in the number of customers and ARPU (Average Revenue Per User) has a positive and significant effect on EBITDA. For ARPU, the coefficient value was obtained as 1.4, indicating that a 1% increase in ARPU would result in a 1.4% increase in EBITDA, assuming other variables remain constant.

An increase in ARPU also means that the company will generate more revenue from each customer using its products or services. This finding is consistent with research conducted by Genakos et al.

(2018) and Karamti (2018), which stated that ARPU is closely related to total revenue per customer and is a measure of company profitability.

Regarding the number of customers or customer base, a coefficient value of 1.054 was obtained, indicating that a 1% increase in the number of customers would lead to a 1% increase in EBITDA, assuming other variables remain constant. This finding is in line with the data analysis conducted over the past 13 years, which resulted in a growth ratio of customers to EBITDA at approximately 1:1.02. It is also consistent with the research by Christopher et al. (1991), which highlighted that customers are key to profitability.

As for other control variables such as the number of liabilities, number of BTS (Base Transceiver Stations), number of operators, and capital expenditure, they did not have a significant impact. This could be due to limited research data (observation time) and the small influence of these control variables on the dependent variable or observed results. The patterns of growth or decline between the dependent variable and these control variables are not always consistent, resulting in insignificant results when combined and analyzed together. Overall, the findings suggest that the PNBP amounts, particularly from Operational Permits and the use of Radio Frequency, should be carefully considered by the government in relation to their impact on the industry's financial performance and investment climate.

CONCLUSION

Based on the research findings, several conclusions can be drawn. Firstly, the burden of PNBP derived from Radio Frequency has a significant negative impact on the financial performance of mobile network operators, as measured by the EBITDA parameter. Secondly, PNBP derived from Operational Permits also has a positive and significant impact on financial performance. However, when other control variables are included in the analysis, the impact of PNBP on financial performance remains positive but not significant. This is because the growth rate of PNBP does not exceed the growth rate of financial performance, meaning that the annual costs incurred by the operators are still lower than the benefits obtained.Additionally, other factors that affect financial performance are Average Revenue Per User (ARPU) and the number of customers, both of which have a positive and significant impact on the financial performance of mobile network operators.

The government should consider reducing the burden of PNBP derived from Radio Frequency in order to maintain the financial performance of the operators. This can be achieved by adjusting the calculation parameters for PNBP from Radio Frequency, specifically by making minimal changes to values, which are within the authority of the Minister. It is important to note that PNBP is a state revenue used for development purposes, so the contribution of PNBP from operational permits can also be maximized to support overall financial performance. However, it is crucial to ensure that the increase in costs incurred by the operators does not exceed the benefits received, in order to maintain financial performance.

The government should implement policies that support the improvement of operational performance for mobile network operators, particularly focusing on increasing the number of customers and ARPU. This is because the enhancement of these factors also has a significant impact on the financial performance of the operators. The government can create a favourable environment for the financial sustainability and growth of mobile network operators while ensuring a balance between revenue generation and operational costs.

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