Financial Performance Analysis of Telecom Industry of Bhutan: A Study on Bhutan Telecom Limited (BTL)

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Abstract

Telecommunication industries are the boosters of any economic growth. In Bhutan, Bhutan Telecom Limited (BTL) plays a significant role in providing quality network services. The study aims to assess the financial performance of the company from 2011 to 2021 and also identify the factors affecting its profitability. This study is based on hypothesis testing of the research design and tries to identify the best model to explain the performance of the company using regression analysis. The study considered the Return on Equity (ROE) as the dependent variable and Current Ratio (CR), Working capital to sales (WCS), Return on sales (ROS), and Debt-to-equity Ratio as independent variables. The test stated that DER, WCS, and ROS have a significant impact on the profitability. However, CR has no significant impact on the profitability. The finding portrays that the company's profitability has increased continuously from 2019-2021, despite the interruptions from the COVID-19 pandemic.

Keywords: Bhutan Telecom Limited, Financial Performance, Covid-19 Pandemic, Regression Analysis

Introduction

Telecom is a service provider business and is also known as telecommunication. Telecom provides the services of electronic transmission of information over the distances. It plays a major role in the daily lives of the people and makes a large contribution towards the country's economy. Bhutan has two telecom operators, one under the ownership of the government and the other one under private ownership. Since 1970, Bhutan Telecom Limited (BTL) has played a significant role in the nation's telecommunication and internet infrastructure. In addition to fixed line telephony, it offers Internet services under the brand name Druk Net and GSM mobile services under its main brand B-Mobile. The network

of BTL has covered 205 gewogs in Bhutan enabling its services even to the remotest corner of the country.

The covid pandemic over the last few years has led to revised growth forecasts for the global economy. Outbreak of the pandemic impacted on many lives, and it has also affected various business sectors. However, it is evident that under the current conditions, some businesses become more critical to people's lives and could face an increase in demand, such as in the case of the information and communication technology (ICT) industry. In the case of BTL, some operations were interrupted by regulations and restrictions during the pandemic crisis and despite that the company remained strong and played a vital part in keeping society linked, offices and schools working digitally, with no major losses. In addition to cutting costs and enhancing network quality to keep society connected, the company gave Nu 258.32 million to the government's Covid-19 Fund and offered free and sufficient internet services to quarantine centers and offices to strengthen efficient communications in the country's effort at preventing the pandemic from spreading[1].

Literature review

This section of the article will focus on how various academics have conceptualized the performance of telecom industries. Earlier research suggested that several variables affect the performance of the telecom industries.

The study done by Mitra Debnath and Shankar (2008), compared the relative efficiency of mobile service providers in India by employing the method of data envelopment analysis (DEA). The research examined the differences between the number of subscribers and the performance of the service providers. The study also checked whether the benchmarking of the service providers would depend on the efficiency and quality of services. The findings reflect operating performance as a primary reason for inefficiency among the service providers. It was recommended that Government policies needed to be fine-tuned so that a better competitive environment emerges to meet the customer expectations.

Later, Goto(2010) investigated the financial performance of the world telecommunications industry by DEA–DA (Data Envelopment Analysis–

[1] Bhutan Telecom (2020), Annual Report, pg. 3

Discriminant Analysis). The study measured the financial performance of AT&T (American Telephone & Telegraph) and NTT (Nippon Telegraph and Telephone) after the company's split. The study showed that AT&T outperformed NTT because AT&T changed itself to an IT (Information Technology) company that provides wireless communications services and other IT services, but NTT separated IT and wireless services into the other companies after the breakup.

Venkatram and Zhu (2012)conducted a study in the telecom industry of China and India. The author tried to make a relation between factors affecting the growth in the profit of telecom industry of China and India. The author collected data from primary sources through interviews and questionnaires. The Granger Causality Test was used for the purpose of data analysis. The findings of the study presented that "Number of Subscribers", "Technology Innovation" and "Government Regulation and Policies" were the most influential factors contributing to the profit of telecom industry in India and China.

Koi-Akrofi(2013)conducted a study to determine profitability of the telecommunication industry in Ghana from 2002 to 2006. The research adopted a quantitative approach, and the data were collected through secondary sources. Multiple regression was used for analysis. The result shows that total assets and net assets increased by 4 times each from 2002 to 2006, industry net profit increased, and the industry's revenue had increased by 5 times which was positive development and gives hope to investors who would like to invest in the industry.

Likewise, Sabutey et al. (2014), conducted a study to assess overall customer satisfaction and loyalty as well as sustainability of products and service quality delivered by Mobile Telecommunication Network and Vodafone to the students of University for Development Studies. A structured questionnaire was used to collect data from hundred (100) individual subscribers selected from the two Telecom groups via cluster and simple random sampling procedures. The findings indicated that overall customer satisfaction ratings among subscribers of mobile telecommunication networks in university for development studies significantly differ and that relatively, customers of mobile Telecommunication networks rated their satisfaction with service quality higher than those of Vodafone.

Ali and Haque (2017) conducted a study on the financial performance, customer satisfaction and service quality of the telecommunication industry in Saudi Arabia. Financial performance of service providers indicates STC (Saudi Telecommunication Company**)** as the best, while Zain currently has the highest net sales. The findings stated that customer satisfaction was much lower in the telecommunication sector. The results also indicated that there was neither any significant difference between the satisfaction of customers from their respective service providers nor was there any significant difference between aspects of service quality of different service providers.

Similarly, Gaste and Hundekar (2017) analyzed the financial performance of the Indian telecom sector especially focused on BSNL (Bharat Sanchar Nigam Limited), Bharati Airtel and Vodafone. The data were collected through secondary sources. It showed that the highest profit earning company is Bharati Airtel, and it had the highest return on capital employed (ROCE) comparatively. The profit and ROCE of BSNL keeps on changing as compared to Bharati Airtel and Vodafone which have an increasing ROCE and profit. To maintain a consistently reputable company image, it was advised that the corporation concentrate on innovative technology, client needs, and employee satisfaction.

The study conducted by Ramachandran and Kelkar (2019), analyzes the financial performance of telecom companies in Oman. For seven years (2010-2016), data were collected through yearly reports from two telecom businesses, and financial statement data was examined using the Z score model. The results of the analysis show that the performance of Omantel was better than Ooredoo. The study also gave investors a recommendation for a business where they may invest for higher returns.

In another study done by Hendrawan et al. (2019), the author aimed to analyze the efficiency of telecommunications companies and found out the variables of efficiency of telecommunications companies in Southeast Asia in the period of 2008-2017 using the Stochastic Frontier Analysis method. The results of these studies showed that the telecommunications companies in Southeast Asia still had room to improve their profit efficiency scores of 0,984 – 0,689 = 0.295. Furthermore, the results showed that input variables such as Personal, capex and opex have a positive effect on the value of efficiency which means that each increase in the variable Capex, opex and Personal Expenses will have an impact in increasing the value of

efficiency whereas the total assets will have negative effects on the efficiency value of telecommunications operators. Output variables consisting of revenue, subscribers and ARPU have a significant effect on the value of efficiency.

Daryanto et al. (2020) analyzed the development of the four telecom companies using financial ratio analysis from 2014-2018. The method used in this research was a descriptive analysis. The result revealed that the financial performance of telecommunications companies in the 2014-2018 period were based/dependent on liquidity ratios, solvency, and the activity ratio. The result indicates that the performance based on liquidity ratio, PT Telecom had the best financial performance. Regarding the solvency ratio PT XL Axiata has the best performance; however, in the activity ratio PT XL Axiata in 2014 had the best performance until 2017 and PT Smartfren Telecom in 2018.

Singh and Garg (2020) examined the effect of covid-19 on the telecom company and it also determines how reliance Jio affects the telecom industry. It states that although the burden on telecom grew up to 40-60%, the way the telecom industry handled the situation was far better than expected. Findings showed that Reliance Jio has become the most considerable telecom player by beating Airtel, Vodafone and Idea. It changed all the market strategy in India and forced the other telecom industry to lower the rates. Further, it was suggested that the companies have to update themselves by bringing new products and digital tools for their customers, and they have to improve their infrastructure as the traffic of the network increases.

Barot and Japee(2021) evaluated the financial performance of the two large and old companies, Airtel and Vodafone through ratio analysis which shows more volatility in the selected time span from 2015-16 to 2019-20. Considering the gross profit and net profit of Airtel, finding shows that Airtel is performing better than Vodafone. Both companies are doing well in terms of liquidity, but Airtel average liquidity is slightly stronger than Vodafone's. The analysis found that Airtel had greater financial performance than Vodafone Idea over the course of the five years, leading to the conclusion that Airtel had superior financial performance overall.

Shankhdhar(2021), analyzed the financial performance of four companies (Tata Com, Artel, Vodafone Idea and R.com) of telecom trade for the duration of 10 years from 2011-2020. The data which has been used for

analysis is secondary nature data, and it has been retrieved from various online sources and fiscal reports of the companies. Profitability, leverage, liquidity, and managerial efficiency are the tools used for the data analysis. The outcome demonstrates that the financial management of the organizations differs significantly. Except for liquidity, Tata Com has performed well across all financial indicators. The company has performed exceptionally well in terms of profitability ratios as compared to all its fellow competitors. Airtel and Tata Com have been able to maintain a decent Liquidity as compared to other companies, and they were in a better position to repay their debts.

Jauzaa and Hirawati(2021), also conducted a study to analyze the performances of telecommunication sectors judging from profitability ratios which includes ROA, ROE, and NPM period before and during pandemic. The data were collected through the financial statements of telecommunication companies listed on Indonesian Stock Exchange quarter 2 of 2019-quarter 1 of 2021 and analyzed using descriptive methods. The results reveal that the average value of profitability measures such as ROA, ROE, and NPM influenced the financial performance of companies in the telecoms sector. Overall, average financial performance of telecommunications sector enterprises has grown since the Covid-19 epidemic was first identified. Assessment with analysis of Hoteling's T2 test also provided results that there was no difference in financial performance in terms of profitability ratio between before and during Covid-19 pandemic.

In a similar manner, Rani et al. (2021)predicted the changes in the taste and preference of the customers and also checked which customers are likely to switch to a competitor in the future. The analysis of the companies with their previous data was done to understand the current situation of the company, so that the company could develop new plans to bring new customers and also to retain the existing customers.

A study was done on Impact of Capital Structure on Profitability: Panel Data Evidence of the Telecom Industry in the United States. The results reveal that the ratio of Total Liability to Total Assets has a significant impact on ROA, and Total Equity to Total Assets has a significant impact on ROA. However, Total Liability to Total Assets and Total Equity to Total Assetshave no impact on ROE(Habibniya et al., 2022).

Zhang et al. (2022), conducted a study in China to create a mixedestimate model to forecast telecom client turnover through customer segmentation. Data was collected from three main telecom operators in China. A telecom customer churn prediction model was developed using Fisher discriminant equations and logistic regression analysis. The findings of the study presented that the telecom customer churn modelhad a greater accurate forecasting (93.94%) and produced better outcomes. The study helped telecom companies to efficiently predict the possibility of better performance and take focused steps to prevent loss of consumers to boost their earnings.

Mulyono(2023)The results concluded a significant effect of the Covid-19 pandemic on company profitability in the technology and telecommunications industry. A total of 65.79% of the sample of companies experienced a decrease in profitability. However, the study conducted in indionisa on the companies listed on Indonesia Stock Exchange by AlifaJauzaaa and HeniHirawat (2021), It stated that financial performance of telecommunications sector has increased. It has been guided by average value of profitability ratios that include Return on Assets, Return on Equity, and Net Profit Margin.

As can be seen from the literature mentioned above, performance evaluation of an organization becomes necessary to understand the financial as well as non-financial positions of the organization. Such a study will help the organization understand its current position and will also help the organization improve in future. However, a study related to financial performance of the telecom industry in Bhutan is very limited. With this background, this paper studies the financial performance of one of the oldest telecom industries (Bhutan Telecom Limited) in Bhutan. This study identifies factors contributing to the financial performance of Bhutan Telecom Limited and makes a model to explain the relationship between various factors and the profit of the organization.

Objectives of the study

The following are the identified objectives of the study:

i. To assess the financial performance of Bhutan Telecom Limited for the period 2011 to 2021.
ii. To identify the factors affecting the profitability of Bhutan Telecom Limited.

Hypotheses of the study

For this study, the following null hypotheses has been identified:

i. Current ratio (CR) has no significant impact on the profitability of BTL
ii. Working capital to sales (WCS) has no significant impact on the profitability of BTL
iii. Return on sales (ROS) has no significant impact on the profitability of BTL
iv. Debt-to-equity Ratio (DER) has no significant impact on the profitability of BTL

Research Methodology

For analyzing the financial performance of Bhutan Telecom Limited, 11 years (2011 to 2021) data were gathered. The data was collected from the published annual reports of Bhutan Telecom Limited. This research only considered one telecommunication company in Bhutan (namely Bhutan Telecom Limited) due to unavailability of the data.

Research design

This study is based on hypothesis testing research design and tries to identify the best model to explain the performance of Bhutan Telecom Limited. The following model was tested using regression analysis:

$$ROE = \alpha + \beta_1 CR + \beta_2 WCS + \beta_3 DER + \beta_4 ROS + e$$

In the above model:

- α is constant
- β_1, β_2, β_3, and $\beta_4$are the coefficients
- e is the error

Operational design

To explain the relationship of different variables on the profitability of Bhutan Telecom Limited, the following sets of dependent and independent variables were used:

Dependent Variable

Return on Equity (ROE)

Return on equity is a measure of financial performance calculated by dividing net income by shareholders' equity. Shareholders' equity is equal to a company's assets minus its debt. ROE, on the other hand, is considered as the return on net assets. ROE is an important financial metric that investors use to determine how efficient management is at utilizing equity financing, and it also helps investors understand whether they are getting a good return on their money. The higher the ROE, the more efficient a company's management is at generating income and growth from its equity financing.

$$\text{ROE} = \frac{Net\ income}{Shareholders'\ Equity}$$

Independent Variable

Current Ratio

Current ratio is one of the liquidity ratios and determines the company's ability to pay off current debt obligations without raising external capital. Current ratio is calculated by dividing the current assets by the current liabilities. Both the current assets and liabilities are derived from the balance sheet.

$$CR = \frac{Current\ Assets}{Current\ Liabilities}$$

Working capital to sales

It determines how well the company is utilizing its working capital to generate revenue. The sales to working capital ratio is calculated by dividing annualized net sales by average working capital.

$$WCS = \frac{Net\ sales}{Average\ working\ capital}$$

Return on sales.

Return on sales (ROS) is used to measure how efficiently a company turns sales into profits. ROS is calculated by dividing operating profit by net sales.

$$ROS = \frac{EBIT}{Net\ sales\ revenue}$$

Debt-to-equity Ratio (DER)

It is the ratio of total liabilities to total shareholder's equity. The ratio is used to evaluate a company's financial leverage. It is a measure of the degree to which a company is financing its operations with debt rather than its own resources. Debt-to-equity ratio is a particular type of gearing ratio.

$$DER = \frac{Total\ liabilities}{Total\ shareholders'\ equity}$$

Results and Discussion

To determine the relation between different variables on the financial performance of Bhutan Telecom Limited, a regression model was tested. ROE was kept as the dependent variable in the regression model. The result of the test is presented below:

Table 1

Descriptive Statistics

Years	ROE	CR	WCS	DER	ROS
2011	0.16	2.10	0.29	0.22	0.37
2012	0.19	2.07	0.26	0.17	0.39
2013	0.12	2.22	0.68	0.12	0.29
2014	0.13	1.67	0.39	0.07	0.29
2015	0.14	1.41	0.08	0.11	0.28
2016	0.21	1.81	0.03	0.07	0.31
2017	0.20	0.92	0.01	0.15	0.40
2018	0.21	1.25	0.01	0.16	0.39
2019	0.24	1.42	0.12	0.18	0.43
2020	0.28	2.72	0.24	0.13	0.48
2021	0.34	2.19	0.26	0.07	0.55
CAGR	7.04%	0.38%	-0.88%	-9.74%	3.64%
Mean	0.203	1.798	0.216	0.131	0.381
SD*	0.063	0.498	0.192	0.047	0.082
CV**	31.05%	27.70%	88.69%	35.71%	21.43%

Note: *Standard Deviation; **Coefficient of Variation

Source: Author's calculation

Table 1 represents the descriptive statistics of variables used in this study. The figure shows that ROE has the highest compounded annual growth

rate (CAGR) of 7.04% over the last 11 years, and it has consistent growth which was indicated by the SD of 0.063. After 2018 ROE has continuously increased, it's because of the company's proper mixture of equity with long term loans and also company maintained the strong capital structure which helped the company's growth increased from 21.23% to 23.76%. Another reason for the increased ROE was from the growth of company's revenue. Company recorded a revenue of Nu 4,039.01 million in 2019 and profit after tax of Nu 1,102.51 million, marking a revenue growth of 12.40% and profit after tax growth of 17.07% respectively, as compared to 2018.

CR has one of the lowest positive growths among the variables used in this study. It has shown the most inconsistent growth over the period of study (SD: 0.498). CR had its major decline in 2014 where the ratio decreased from 2.22 in 2013 to 1.67 in 2014. This mainly resulted due to a decrease in short term loans and advances in the year 2014. CR recorded its lowest fall in 2017 where the ratio decreased form 1.81 in 2016 to 0.92 in 2017. This was mainly due to the adoption of IFRS for the first time by the organization. The adoption of IFRS mad a change in the bad debt norms of the organization. The decline was also because the organization had to pay 313 million to the shareholders of registered under Group Investment Revenue.

On the other hand, CAGR of DER shows that the debt of BTL has decreased over the period of study. DER has also depicted one of the consistent changes in this study. This shows that the company was able to do a proper debt management for the period of study. In the same manner, there has been decrease in WCS as well for the period of study.

Table 2

Correlation Matrix of Independent Variables

		DER	ROS	WCS	CR
DER	Pearson Correlation	1			
	Sig. (2-tailed)				
ROS	Pearson Correlation	0.117	1		
	Sig. (2-tailed)	0.731			
WCS	Pearson Correlation	-0.105	-0.188	1	
	Sig. (2-tailed)	0.758	0.581		
CR	Pearson Correlation	-0.107	0.287	0.599	1
	Sig. (2-tailed)	0.754	0.393	0.052	

Source: Author's calculation

Table 2 presents the correlation matrix of independent variables used in the study, and the test was conducted at 5% of significance level. The test concluded that the independent variables used for the study had no correlation between them.

Table 3
Coefficient Table (Dependent variable ROE

	Unstandardized Coefficients		**t**	**Sig.**	**Collinearity Statistics**	
	B	Std. Error			Tolerance	VIF
(Constant)	-0.025	0.026	-0.957	0.375		
DER	-0.342	0.092	-3.704	0.010	0.964	1.037
ROS	0.659	0.063	10.471	0.000	0.701	1.427
WCS	-0.095	0.032	-2.985	0.024	0.500	1.999
CR	0.024	0.013	1.876	0.110	0.469	2.133
Model Summary	**R^2: 0.972**	**Adjusted R^2: 0.854**	**F: 52.351**	**Sig. 0.000**	**Durbin-Watson: 2.505**	

Source: Author's calculation

Table 3 presents the coefficient table of regression analysis where ROE is the dependent variable and DER, ROS, WCS, and CR are the independent variables. The test was conducted at 5% level of significance. From the table, the test fails to reject the null hypothesis of CR (sig: 0.110) as its significant value is more than 0.05. Therefore, it can be stated that CR has no significant impact on the profitability of BTL.

On the other hand, the significant value of DER (sig: 0.010), ROS (sig. 0.000), and WCS (sig: 0.024) is less than 0.05 and hence, the test rejects the null hypothesis of DER, ROS, and WCS. Therefore, it can be stated that DER, ROS, and WCS have a significant impact on the profitability of BTL. It can also be seen that ROS (t-statistics: 10.471) has a positive relation with the profitability of BTL. However, DER (t-statistics: -3.704) and WCS (t-statistics: -2.985) have negative relation with profitability of BTL.

The table also presents the model summary of the analysis. The adjusted R^2 is 0.854. It means that 85.4% of the time the independent variables explain the dependent variable. The value of Durbin Watson is 2.505 which falls under the acceptance level of these statistics (i.e., 1.5 to 2.5). The F-statistics (52.351) from ANOVA was also significant (Sig: 0.000) at 5% level

of significance. Therefore, with the help of the coefficient table given above (Table 4), the following regression model is formed:
ROE= -0.025 – 0.342DER +0.659ROS – 0.095WCS

Collinearity statistics column presents the test of multicollinearity among the variables used in this study. This is done mainly because if the value of multicollinearity is very high, the variable may not fit for regression analysis. In regression analysis, multicollinearity is checked by variance inflation factor (VIF).

As a rule of thumb, a VIF value from Collinearity statistics is regarded acceptable if it is less than 10. Any VIF value more than 10 will have adverse effects on the regression model[2]. From the table, the VIF value for DER, ROS, WCS, and CR was less than 10. This shows that the variables used in this study did not have any issues of multicollinearity.

Table 4
Testing of Hypothesis

Hypotheses	t-statistics	Sig.	Accept or reject
Debt-to-equity Ratio (DER) has no significant impact on the profitability of BTL	-3.704	0.010	Reject
Return on Sales Ratio (ROS) has no significant impact on the profitability of BTL	10.471	0.000	Reject
Working Capital to Sales (WCS) has no significant impact on the profitability of BTL	-2.985	0.024	Reject
Current ratio (CR) has no significant impact on the profitability of BTL	1.876	0.110	Accept

Source: Author's Calculation

Table 4 shows the testing of hypotheses where the test was conducted at 5% significance level. Out of the four hypotheses, the test rejects the null

[2]Field, A. (2018). *Discovering Statistics Using IBM SPSS Statistics* (5th ed., pp. 697-698). SAGE Publications, Inc.

hypothesis of DER (0.010), ROS (0.000), and WCS (0.024). The test fails to reject the null hypothesis of CR (0.110).

Findings

The analysis done in this study shows that the WCS and DER of BTL has decreased for the period of the study. However, the profit of the organization (measured by ROE) has increased for the period of the study. This shows that BTL is in profitable condition though the world was impacted by Covid-19 pandemic during last few years. The increase in ROS of BTL depicts the company's ability to generate profit from its operation. During the Covid-19 period, the ROS of BTL has increased as compared to other years. This was mainly due to the need of internet for the people who were working from home and the student internet scheme introduced by BTL for the students to attain the online classes.

The study indicates there was no correlation between the independent variables used in the study. By considering ROE as the dependent variable and CR, WCS, DER and ROS, as the independent variables, the test was conducted at 5% level of significance. The test rejects the null hypothesis of WCS (0.001), DER (0.103) and ROS (0.051). Therefore, the test concludes that there is no significant impact of CR on the profitability of BTL. Whereas DER, ROS, and WCS had a significant impact on the profitability of BTL. It was also seen that ROS (t-statistics: 10.471) had a positive relation with the profitability of BTL. However, DER (t-statistics: -3.704) and WCS (t-statistics: -2.985) had negative relation with profitability of BTL.

Conclusion

Telecom industry plays a vital role in the Bhutanese economy by providing the necessary communication services through technology which ultimately contributes to the growth of the economy. From the test conducted, the findings were DER, ROS and WCS had a significant impact on the profitability of BTL; however, CR has no significant impact on the profitability of BTL.

While the company's debt had decreased and the return on equity and return on sales has increased especially from 2019. From these, it can be concluded that even though Covid-19 pandemic had affected business all around the world, it was a different scenario for BTL. Although there was

disruption in the physical activities of BTL during the pandemic, the performance was not affected. In fact, the performance of BTL was better as demand for the digitalized connection had increased.

This study observed that despite the impact of the pandemic, the company's profitability has increased over the years. The profitability of the company has been shown with the CR, WCS, DER and ROS ratios. Though the ratios used in the study ratio show the significant impact on profitability of a company, still these are not only the ratios that analyze the financial performance of the telecom industry. Many financial ratios were discarded from this study because of the issue of multicollinearity with the dependent variables used in this study. This creates opportunities for the future researchers who would like to conduct similar study in telecom industry in Bhutan. Different sets of dependent and independent variables can be used to study the profitability position of telecom industry in Bhutan.

References

Ali, A., & Haque, M. I. (2017). Telecommunication Sector of Saudi Arabia: Internal and External Analysis. *Academy of Accounting and Financial Studies Journal*, *21*(3), 1–21. https://doi.org/http://dx.doi.org/10.36478/ibm.2017.1363.1373

Barot, B., & Japee, G. P. (2021). A Study On Financial Performance Of Selected Telecom Companies In India. *Towards Excellence 13*(2), 1–14. https://hrdc.gujaratuniversity.ac.in/Publication

Daryanto, W. M., Hasanah, A. N., & Bilqisthi, M. A. (2020). Analysis the Competitiveness of Telecommunication Industry After the Era of Internet of Things (Iot). *South East Asia Journal of Contemporary Business, Economics and Law*, *21*(3), 21–29.

Gaste, M., & Hundekar, V. R. (2017). Financial Performance of Telecom Companies. *International Research Journal of Engineering and Technology*, *04*(11), 1388–1390. www.irjet.net

Goto, M. (2010). Financial performance analysis of US and world telecommunications companies: Importance of Information Technology in the telecommunications industry after the AT&T breakup and the NTT divestiture. *Decision Support Systems*, *48*(3), 447–456. https://doi.org/10.1016/j.dss.2009.06.003

Habibniya, H., Dsouza, S., Rabbani, M. R., Nawaz, N., & Demiraj, R. (2022). Impact of Capital Structure on Profitability: Panel Data Evidence of the Telecom Industry in the United States. *Risks*, *10*(8), 1–19. https://doi.org/10.3390/risks10080157

Hendrawan, R., Permana, G. T., & Nugroho, K. W. (2019). Efficiency analysis of telecommunications companies in Southeast Asia using Stochastic Frontier Analysis (SFA) method. *Jurnal Siasat Bisnis*, *23*(2), 104–112. https://doi.org/10.20885/jsb.vol23.iss2.art3

Jauzaa, A., & Hirawati, H. (2021). Financial Performance of Telecommunication Sector Companies Before And During The Covid-19 Pandemic. *Airlangga Journal of Innovation Management*, *2*(2), 131. https://doi.org/10.20473/ajim.v2i2.30322

Koi-Akrofi, G. Y. (2013). Profitability Analysis of the Telecommunications Industry in Ghana from 2002 to 2006. *Asian Journal of Business Management*, *5*(1), 60–76. https://doi.org/10.19026/ajbm.5.5814

Mitra Debnath, R., & Shankar, R. (2008). Benchmarking telecommunication service in India. *Benchmarking: An International Journal*, *15*(5), 584–598. https://doi.org/10.1108/14635770810903169

Mulyono. (2023). Pandemic Covid-19 Impact on Technology and Telecommunication Industry: Evidence from Indonesia Listed Company. *E3S Web of Conferences*, *388*, 03034. https://doi.org/10.1051/e3sconf/202338803034

Ramachandran, N., & Kelkar, A. S. (2019). Financial Performance of Telecom Industry in Sultanate of Oman. *International Journal of Accounting Research*, *4*(2), 35–45. https://doi.org/10.12816/0055277

Rani, K. S., Thaslima, S., Prasanna, N. G. L., Vindhya, R., & Srilakshmi, P. (2021). Analysis of customer churn prediction in telecom industry using logistic regression. *International Journal of Innovative Research in Computer Science & Technology*, *9*(4), 27–29. https://doi.org/10.21276/ijircst.2021.9.4.6

Sabutey, G., Dumayiri, M., & Saah, A. (2014). A Comparative analysis of customer satisfaction ratings of Telco products and services among UDS students in Ghana. *International Journal of Information Technology and Business Management*, *25*(1), 79–95.

Shankhdhar, G. (2021). The Study Of Financial Performance Of Selected Companies In Telecom Sector. *European Journal of Molecular & Clinical Medicine*, *8*(2), 1913–1927.

Singh, G., & Garg, S. K. (2020). Affect Of Covid-19 On Telecom Sector In India-A Review. *PalArch's Journal of Archaeology of Egypt / Egyptology*, *17*(6), 13206–13213. https://archives.palarch.nl/index.php/jae/article/view/3399

Venkatram, R., & Zhu, X. (2012). An analysis of Factors Influencing the Telecommunication Industry Growth. *Blekinge Institute of Technology*, *19840206*, 1–53. https://www.diva-portal.org/smash/get/diva2:829355/FULLTEXT01.pdf

Zhang, T., Moro, S., & Ramos, R. F. (2022). A Data-Driven Approach to Improve Customer Churn Prediction Based on Telecom Customer Segmentation. *Future Internet*, *14*(3), 94. https://doi.org/10.3390/fi14030094