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An Analysis of The Effect of Online Banking on Bank Performance in Indonesia

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Abstract

Technology has become a necessity, including in financial institutions which are the backbone of economy, it can help to improve service delivery, simplify investigations, improve banking performance, and save transaction time. It is expected that the bank can expand its services not only limited to receiving and sending cash. As a result, it is very important to assess the performance of banks as they are in a critical position of the globalization period. The study aims to analyze the effects of internet banking, mobile banking, and automated teller machines on bank performance as measured by asset returns, from commercially listed banks in Indonesia. The study uses quantitative methods and panel data analysis. The study used secondary data in the form of company annual reports. The samples used purposive sampling methods from the banking industry that met the criteria and were listed on the Indonesia Stock Exchange. Data analysis uses multiple regression methods. The tool used is Eviews 10 statistics program. The results showed internet banking had a significant negative effect, mobile banking and ATM have a significant positive effect on bank performance. Overall internet banking, mobile banking, and ATM simultaneously have a significant effect on banking performance. The study limits 36 samples of commercial banks registered in 2016-2020 and there are 3 independent variables and 1 dependent variable in analyzing bank performance. The study explains that not all banks implement a comprehensive internet banking in alternate of mobile banking.

Keywords: *Bank Performance, Asset Return, Internet Banking, Mobile Banking, ATM*

INTRODUCTION

A bank is a company that gathers money from the public in the form of savings and then distributes it to the public in the form of credit and/or other forms so as to raise people's living standards. In today's financial environment, using technology has become a must. Because of the demand for quick information, banks must develop technologies that can help them enhance their banking performance. With the rise in online banking customers, banks are expected to expand their services beyond just receiving and delivering cash. Consequently, banks' financial performance is critical to assess, given their critical position in the period of globalization.

Performance is defined as the achievement of a goal from a specific activity or task in order to achieve corporate goals as measured by standards. Financial performance is an important aspect of overall performance (Sartorno, 2011). According to Rudianto (2013) financial performance refers to the outcome or success of corporate management in efficiently managing firm assets through time. The firm requires financial performance in order to identify and evaluate the company's level of success based on its financial operations. As the number of online banking customers per bank rises, as seen by the decline in the number of branch locations at commercial banks, banking performance will improve. Good banking performance indicates that the amount of assets in the bank will grow, as will the profits have earned.

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Technological developments are incredibly powerful in today's society, and financial institutions are the economy's backbone. It is hard to ignore the fact that technology developments are affecting the banking industry. Banks use cutting-edge technology and methods to learn about their clients' preferences so that they can deliver tailored goods and services. Technology helps financial institutions because it simplifies investigations, saves time, and enhances service delivery. Technology also helps firms meet the needs of urban people in areas such as health care, library resources, education, and networking networks, among other things. Calculating the impact of automation in the banking business is difficult. With the rising importance of technology, the developed world will gain in several ways.

Referring from the study of Ogutu (2019), the use of telephone networks and the internet to deliver a wide range of value-added services to commercial bank clients is known as online banking. Sadr (2013) has defined online banking as a rapidly growing service that allows customers to utilize a device to access account-specific data and perhaps make transactions from a remote location, such as their home or place of business. According to Abaenewe (2013), online banking is the practice of electronic banking, which entails the use of information and communication technology to help banks achieve their current and long-term goals. Hawke (2003) has also reaffirmed that providing retail and low-value banking goods and services over electronic networks, as well as providing high-value electronic payments and other electronically distributed wholesale banking services, falls under the definition of online banking. The author concluded after reviewing several previous studies that online banking is essentially the application of technological advancements to banking products and services via electronic channels, which can potentially assist customers in conducting transactions at a more convenient time and location. In this study, the definition of online banking according to Abaenewe (2013) and Sadr (2013) are more applicable and match with the research.

Indonesian banks, like those in other countries, have recently adopted online banking systems to keep up with technological advancements. According to Fatimah (2018), Indonesian banks have been compelled to incorporate digital into their business strategies as a result of digital transformation. Banks belonging to the Bank Pembangunan Daerah (BPD), joint venture banks, central banks, state-owned banks, and sariah banks are among the banks in Indonesia that have incorporated digital initiatives into their business strategies. As is the case globally, Indonesian bankers are focusing their digital efforts on consumer banking products and/or services and the mass customer market. Any of the banking products currently available in Indonesia demonstrates how Indonesian banks have succeeded in focusing on customer service enhancement throughout the customer lifecycle.

According to Sugiarto (2012), only about 20% of Indonesia's approximately 130 national private commercial banks have truly invested in modern payment traffic service and administration. Serious and modern workers design their services in such a way that users can access them quickly, independently, and securely, from any location and at any time. As a result, the banking industry has embraced the use of information technology, specifically the internet, to provide services to its customers, dubbed online banking or e-banking. Technological advancements have had a profound effect on every aspect of daily life in Indonesia, including the banking industry. Internet banking is a relatively common application of information technology in today's banking business. Three factors influence the decision to use internet banking, according to Fatimah's (2018) research. When multiple variables were added or subtracted, the predictor was updated by newly generated factors. Three new variables have been added: a desire for quality, a sense of security, and a concern for social impact.

Numerous studies have been conducted on electronic banking and bank performance, for example, Kwateng, Osei-Wusu, and Amanor (2020), which examined the results of internet banking on bank

performance. Their conclusion is to focus on integrated banking practices, in which online banking services are integrated into traditional banking methods not as a strategy to build a reputation, but rather as a marketing tool to increase the institution's territorial reach while maintaining service quality. Sidhu (2018) also conducted research. The internet banking services offered by sample banks contribute to the banks' financial performance (Return on Assets and Return on Equity), and banks must make every effort to assist their customers in using internet banking, thereby increasing their loyalty and confidence and keeping them informed about the products and services available through internet banking. According to a study conducted by El Chaarani (2018), investment in internet banking and automated teller machines has a positive effect on bank performance in Lebanon. In Lebanon, the decision to become a new bank customer is contingent upon the availability of an innovative internet banking system and the presence of automated teller machines in the customer's neighborhood. Instead of visiting branches, Lebanese customers rely on automated teller machines and internet banking.

Numerous studies conducted in Indonesia have examined e-banking in the country. For example, according to a study conducted by Sinambela (2017), providing online banking services has no significant impact on a bank's financial performance as measured by return on assets and return on equity. Fatimah (2018) conducted an analysis of the factors influencing the decision to use internet banking in Indonesia and discovered that three factors influence the decision to use internet banking: Performance Expectancy, Trust, and Social Influence. Margaretha (2015) also conducted an analysis of the effect of banking services on bank profitability. The banking sector is one of the most vital sectors in the industry, contributing significantly to Indonesia's economic growth, which is why this study is critical.

LITERATURE REVIEW

Return on Assets

Return on Assets is a measure of profitability. This ratio is frequently highlighted in financial statement analysis because it demonstrates a company's profitability. According to Brigham (2001), the ratio of net income to total assets indicates the after-tax return on total assets. According to Van Horne (2005), Return on Assets is a metric that indicates an organization's overall effectiveness in generating profits from its available assets, or its capacity to generate profits from invested capital. Riyanto (2001) defined return on assets as the capacity of total assets to generate net profits. He meant net profit after taxes.

Mobile Banking

According to Barnes (2003), mobile banking is a portal that connects a customer to a bank via a mobile computer, such as a mobile phone, tablet, or personal digital assistant. Mobile banking is one of the more recent additions to a growing list of popular mobile banking services. Finland was the first country to implement m-banking; clients were able to pay bills and check account balances using a cell phone (based on the GSM-Global Standard for Mobile-Networks). According to Shaikh (2015), the demand for mobile banking services has increased as a result of increased mobile use, prompting an increase in the number of banks, microfinance institutions, technology firms, and service providers to offer this revolutionary service, as well as new lines of goods and apps designed to broaden their consumers' reach.

Internet Banking

Customers can use internet banking to conduct a variety of banking transactions remotely via the bank's website. When internet banking was first introduced, it was primarily used to display data on

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banks' websites in order to sell their products and services (Tan, 2000). In December 2005, global internet connectivity surpassed 1,018 million users, owing to the growth of new markets for internet-based services such as online banking. Since the turn of the twenty-first century, internet banking has grown exponentially in a number of countries, transforming traditional banking practices. By offering internet banking services, traditional financial institutions hope to reduce operational costs, improve consumer banking services, attract consumers, and increase customer share (Lichtenstein, 2006). After the Internet bubble burst in early 2001, many people speculated that Internet service provider opportunities had vanished. Internet banking is distinct from electronic banking (e-banking) in that it is a higher level of activity that encompasses not only internet banking but also telephone banking, automated teller machines, wireless application programming interface (WAP) banking, and other non-internet electronic payment facilities (Cheng, 2006). Several factors influenced the development of internet banking.

Automated Teller Machine

Adeoti (2011) defined an automated teller machine as a cash dispenser that enables customers to interact with a bank teller without physically approaching one (cashiers). As a result, the automated teller machine takes on the role of bank cashiers and other counter personnel. It is remotely controlled and immediately responds to a customer's query. Banks and depositors may both benefit significantly from automated teller machines. Depositors can use computers to authorize cash withdrawals outside of normal banking hours and locations. Meanwhile, automated teller machines would reduce the cost of services such as depositor requirements by automating previously manual processes. Banks exchanging automated teller machines in order to enable other bank depositors to access their accounts via the automated teller machine of another bank double potential earnings (McAndrews, 2003). According to numerous authors, automated teller machine systems have a beneficial effect on bank performance and customer service (El Chaarani, 2018). It is regarded as an important technique for achieving high levels of efficiency and operation at a low cost. Due to advancements in automated teller machines, Kenya's banking sector now has an incredible opportunity to increase efficiency and customer satisfaction.

RESEARCH METHOD

Quantitative research is the term used to describe this sort of study. The population for this study consisted banking industries listed on the Indonesia Stock Exchange, with a total of 180 firms, and the research period was from 2016 to 2018. The research will be undertaken on a number of Indonesian banks that have been listed on the Indonesia Stock Exchange between 2016 and 2020, have employed online banking, and have included the amount of internet banking, mobile banking, and automated teller machine services on their financial statements. The data criteria needed in this study are as follows, namely, banking industries that are consistently listed on the Indonesia Stock Exchange during 2016 to 2020, banking industries that have been audited from 2016 to 2020 and have book closure dates that expire on December 31 for one accounting cycle, a banking industry that publishes financial statements with a value of IDR in 2016 to 2020. This study employed secondary data from secondary research. The information originates from yearly financial reports of banks registered on the Indonesia Stock Exchange, which may be found at www.idx.co.id and the company's website. The data analysis method utilized in this study will be carry out thorough analysis given in number, the calculations performed with statistical methods using the program eviews 10.

FINDINGS AND DISCUSSION

Findings

In testing the hypothesis, the regression coefficient significance will be tested individually partial test (t test), fit model test (f test), and the coefficient of determination analysis will be carried out. The statistical values of the t test, f test, and the coefficient of determination can be seen in table 1.

Table 1. T Test, F Test, and Coefficient of Determination

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IBI_X1	-0.814668	0.313573	-2.598017	0.0102
MBI_X2	0.845069	0.312438	2.704762	0.0075
ATM_X3	0.106947	0.050564	2.115076	0.0358
C	0.435998	0.208804	2.088079	0.0382
Effects Specification				
			S.D.	Rho
Cross-section random			0.499614	0.2351
Idiosyncratic random			0.901271	0.7649
Weighted Statistics				
R-squared	0.427485	Mean dependent var	0.126808	
Adjusted R-squared	0.269423	S.D. dependent var	0.937660	
S.E. of regression	0.910573	Sum squared resid	145.9292	
F-statistic	4.602716	Durbin-Watson stat	1.832398	
Prob(F-statistic)	0.039703			
Unweighted Statistics				
R-squared	0.564324	Mean dependent var	0.201959	
Sum squared resid	190.8541	Durbin-Watson stat	1.401071	

Source: Data processed with eviews 10, 2021

Partial Test (T Test)

1st Hypothesis: Internet Banking has an effect on Return on Assets

According to the t-test table above, the probability of internet banking having an effect on the return on assets variable is 0.010.05, while the t-count value is 2.59 > t table (1.97), indicating that H0 is rejected but H1 is not, indicating that internet banking has an effect on return on assets.

2nd Hypothesis: Mobile Banking has an effect on Return on Assets

According to the t-test table above, the effect of mobile banking on return on assets is 0.00750.05, while the t-count value is 2.70> t table (1.97), where H0 is rejected but H1 is not, indicating that mobile banking has an effect on return on assets.

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3rd hypothesis: Automated Teller Machine has an effect on Return on Assets

According to the t-test table above, the effect of automated teller machines on return on assets is 0.030.05, while the t-count value is 2.11 > t-table (1.97), indicating that H0 is rejected but H1 is not, indicating that automated teller machines do have an effect on return on assets.

Fit Model Examination (F Test)

According to the table above, the calculated F value exceeds the table F value (4.6 > 2.66), with a significance level of 0.039 0.05. Thus, H0 is rejected, but H1 is accepted, indicating that internet banking, mobile banking, and automated teller machines all have an effect on return on assets when tested concurrently or in combination.

Coefficient of Determination Test

The coefficient of determination (R2) is used to determine how well the independent variable can affect the dependent variable. 0 and one are the coefficients of determination. The capacity of the independent variables to explain the variance of the dependent variable is severely reduced when the R2 value is low. The R Squared value of the random effect technique is 0.42 or 42.8%, as seen in the table of findings above. This graph demonstrates how online banking, mobile banking, and automated teller machines all have a significant impact on return on assets, with the remaining 57.2% impacted by variables outside of this research or the error value. Apart from online banking, there are several other factors that might affecting bank performance. Study from Al Shaher (2011) shows that in Middle Eastern countries, there are several variables that may influence bank performance, including bank characteristics, competitive climate, economic indicator, regulatory and legal environment, country risk. There is also study from Jaouad (2018) that examines the effect of return on assets on the performance of Moroccan banks. The analytical findings revealed that, with the exception of operational management efficacy, defined by the cost-to- income ratio, and bank size, all the independent variables are statistically negligible.

Discussion

In relation with the hypothesis testing, the following is an explanation of the research on internet banking, mobile banking, automated teller machine on return on assets of banking industries listed on the Indonesia Stock Exchange from 2016 to 2020.

Internet Banking to Return on Assets

Based on table 1, the results of the test showed a mobile banking regression coefficient of -0.81 and has a significance value of 0.01 smaller than Sig. 0.05, that means it has significant effect. So, can be concluded that internet banking has a negative significant effect on return on assets in banking industries listed on the Indonesia Stock Exchange (IDX) of 2016-2020 period. This means that any advancement in internet banking services will have a no impact on return on assets. The reason for this might be because not all banks have implemented a comprehensive internet banking system in place of mobile banking. In addition, the author also analyzes that internet banking has many weaknesses, one of which is that it must be accessed through a third party application namely a web browser, so that few customers access it due to the weakness of the security system when browsing directly through the internet on internet banking. This is in line with the research from (Sinambela, 2017)

Mobile Banking to Return on Assets

According to table 1, the test resulted in a mobile banking regression coefficient of 0.84 and a significance value of 0.007 less than Sig. 0.05, indicating that the effect is significant. As a result, it can be concluded that mobile banking has a significant impact on the return on assets in banking industries listed on the Indonesian Stock Exchange (IDX) between 2016 and 2020. Inferring that any advancement in mobile banking will result in an increase in return on assets. This is consistent with research by El Chaarani (2018) and Sidhu (2018), both of which found a positive significant relationship between internet banking and bank performance in Jordan and India. This could be because mobile banking is a component of banks' assets; consequently, any advancement in mobile banking results in an increase in return on assets.

Automated Teller Machines to Return on Assets

According to table 1, the test resulted in a mobile banking regression coefficient of 0.10 and a significance value of 0.03 less than Sig. 0.05, indicating that the effect is significant. As a result, it can be concluded that automated teller machines have a significant impact on the return on assets in banking industries listed on the Indonesian Stock Exchange (IDX) between 2016 and 2020. These findings are comparable to those of El Chaarani (2018), who examines how Lebanese banks, and in this case, Indonesian banks, are attempting to improve their e-banking systems in order to stay current with technological advancements. In this context, the more automated teller machines a bank owns, the better its performance. This also supports Ogutu's (2019) conclusion that automated teller machines have a significant impact on banks' return on assets.

Return on Assets through Internet Banking, Mobile Banking, and Automated Teller Machines

According to the table 1, the F-statistic value is 4.6 and the F-statistic probability value is less than the alpha (0.05) value of 0.03 0.05, indicating that internet banking, mobile banking, and automated teller machines all have an effect on the return on assets of banking companies listed on the Indonesian Stock Exchange (IDX) between 2016 and 2020. The R-square determination coefficient is equal to 0.42. This indicates that 42.8 percent of return on assets is influenced by internet banking, mobile banking, and automated teller machines, while the remaining 57.2 percent is influenced by variables not included in the regression model. According to a study conducted by Jaouad (2018), operational management efficacy, as measured by the cost-to-income ratio, and bank size may be additional variables affecting bank performance despite the presence of online banking.

CONCLUSION

Based on the analysis and discussion in the preceding chapter, the researcher concludes that internet banking has a significant negative effect on return on assets with a coefficient of -0.81 and a significance value of 0.01. With a coefficient of 0.84 and a significance level of 0.007, mobile banking has a significant effect on return on assets. With a coefficient of 0.10 and a significance value of 0.03 on return on assets, automated teller machines have a significant effect on return on assets. Internet banking, mobile banking, and automated teller machines all have a significant effect on return on assets, with an F-statistic of 4.6 and a probability of 0.03 for the F-statistic. It can be concluded that online banking has a significant impact on bank performance, Indonesian banks are expected to enhance their e-banking systems to keep up with technological advancements. In this context, the more internet banking, mobile banking, and automated teller machines a bank has, the better. Additionally, the findings indicated that internet banking,

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mobile banking, and automated teller machines all have an effect on asset returns, which is consistent with previous research.

LIMITATION & FURTHER RESEARCH

This study has limitations that should be taken into account for future research in order to obtain more accurate results. This study has limitations, in this investigation the determination coefficient (R2) appears to be moderate. Then, for additional research, variables relating to bank performance should be included. This study included only 36 companies that met the criteria for 2016-2020, but it is expected that additional studies will include the year of observation to provide a more complete picture of the impact of each variable. This study examines three independent variables, but there are numerous others that can affect bank performance. Additionally, this study uses only one dependent variable to measure bank performance, whereas there are numerous variables that can be used to measure bank performance.

After conducting this research, the author wishes to make some recommendations to various parties for future research. For banks to increase internet banking promotion in order to increase profit, as well as to significantly improve the mobile banking system because it has the potential to improve bank performance in the future, and to promote mobile banking use so that customers have a better understanding of the service. For current and prospective investors to ascertain whether banks have implemented an e-banking system, as banks must keep up with technological advancements, particularly in the financial sector, and to obtain additional information from banks in order to determine whether to continue investing or to begin investing. For government to pay closer attention to technological advancements and to keep the rules governing the electronic banking system current.

REFERENCES

Abaenewe, Z. C. (2013). Electronic banking and Bank Performance in Nigeria. West African journal of Industrial and Academic Research, 171-187.

Adeoti, J. O. (2011). Automated teller machine (ATM) frauds in Nigeria: The way out. Journal of Social Sciences, 27(1), 53-58.

Al Shaher, T. K. (2011). The major factors that affect banks' performance in Middle Eastern countries. Journal of Money, Investment and Banking, 20, 101-109.

Barnes, S. C. (2003). Mobile Banking: Concept and Potential. International Journal of Mobile Communications, 1, 273-288.

Brigham, E. F., & Houston, J. F. (2001). Manajemen Keuangan. Buku 1 edisi 8. Jakarta: Erlangga.

Cheng, T. E. (2006). Adoption of internet banking: an empirical study in Hong Kong. Decision support systems, 42(3), 1558-1572.

El Chaarani, H. &. (2018). The Impact of Technological Innovation on Bank Performance. Journal of Internet Banking and Commerce, 23(3), 1- 33.

Fatimah, E. O. (2018). Analysis factors of using internet banking in Indonesia. In 3. Management and Organizational Studies, PwC Survey: Digital Banking in Indonesia. (pp. 10-15). Jakarta: Pricewaterhouse Coopers.

Hawke, J. (2003). Risk management: principles for eletronic banking. United States: Basel Committee.

Jaouad, E. &. (2018). Factors Affecting Bank Performance: Empirical Evidence from Morocco. Morocco: European Scientific Journal, 14(34).

Kwateng, K. O., Osei-Wusu, E. E., & Amanor, K. (2020). Exploring the effect of online banking on bank performance using data envelopment analysis. Benchmarking: An International Journal, 137-165.

Lichtenstein, S. &. (2006). Understanding consumer adoption of internet banking: an interpretive study in the Australian banking context. Journal of electronic commerce research, 7(2), 50.

Margaretha, F. (2015). Dampak electronic banking terhadap kinerja perbankan Indonesia. Jurnal Keuangan dan Perbankan, 19(3).

McAndrews, J. J. (2003). Automated teller machine network pricing-a review of the literature. Review of Network Economics, 2(2).

Ogutu, M. &. (2019). Effect of e-banking on financial performance of listed commercial banks in Kenya. Global Scientific Journal, 7(11).

Riyanto, B. (2001). Dasar dasar pembelanjaan perusahaan.

Rudianto. (2013). Akuntansi Manajemen Informasi untuk Pengambilan Keputusan Strategis. Jakarta: Erlangga.

Sadr, S. M. (2013). Consideration the effect of e-banking on bank profitability; Case study selected Asian countries. Journal of Economics and Sustainable Development, 4(11), 112-117.

Sartorno, A. (2011). Manajemen Keuangan Teori dan Aplikasi. Yogyakarta: BPFE.

Shaikh, A. A. (2015). Mobile banking adoption: A literature review. Telematics and informatics, 32(1), 129-142.

Sidhu, M. K. (2018). The Impact of Internet Banking on Bank Performance: Empirical Evidence from Indian Bank. Journal of Commerce & Accounting Research.

Sinambela, E. &. (2017). Pengaruh Penyediaan Layanan Internet Banking. Forum Keuangan dan Bisnis Indonesia (FKBI), 87-94.

Sugiarto, A. (2012). Adopsi Internet Banking Bagi Keunggulan Performa Perbankan: Sebuah Studi pada Sektor Perbankan di Indonesia. Jurnal Dinamika Akuntansi, 4(1).

Tan, M. &. (2000). Factors influencing the adoption of Internet banking. Journal of the Association for information Systems, 1(1), 5.

Van Horne, J. C., & Wachowicz, J. M. (2005). Fundamentals of financial management. Pearson Education.

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