The Future of Finance and Banking Journal (FFBJ)
Volume 01 No. 01 | June 2025 : 35 - 44
DOI: 10.xxxxx
http://journal.caturapublisher.ac.id/index.php/ffbj
e-ISSN: xxxx-xxxx

A Comparative Review of Bank Financial Performance Before and After Implementing Mobile Banking (Case Study on PT. Bank Rakyat Indonesia Tbk.)

Deavina Tiara Riffayani[1)], Nafisah Ruhana[2)], Radia Purbayati[3)]
[1,2,3]*Department of Accounting, Politeknik Negeri Bandung, Bandung, Indonesia*
deavina.tiara.kpn21@polban.ac.id

History of the article :
Accepted June 2025
Revised June 2025
Approved June 2025
Published June 2025

ABSTRACT
This study aims to compare the financial performance of Bank BRI before and after implementing Mobile Banking. This study uses data from a period of 5 years before (2014-2019) and 5 years after the implementation of Mobile Banking (2019-2023). Financial performance analysis involves ROA, ROE, EPS, and NPL variables. All variables were normally distributed and could continue testing using paired sample t-test. The study found that there was no significant difference in ROA, ROE, and EPS. This condition was influenced by the Covid-19 pandemic which affected the profitability of banks after the launch of Mobile Banking. However, there was a significant decrease in NPLs after the implementation of Mobile Banking. This indicates an improvement in credit quality supported by the credit restructuring policy implemented by OJK in response to the impact of Covid-19. It can be concluded that while there is no significant impact on ROA, ROE, and EPS after Mobile Banking, there is a significant improvement in credit quality and a decrease in NPL ratio after Mobile Banking.

Keywords : *Mobile Banking; financial performance objectives; ROA; ROE; EPS; NPL.*

INTRODUCTION

Rapid developments in technology have increased satisfaction by simplifying activities. The presence of smartphones as a tool that drives technological advancement has encouraged competition between technology companies to create innovations that facilitate various aspects of daily life. This technology also has a significant impact on the economy, in accordance with Kelly's (1998) view that the New Economy is the result of advances in information and communication technology that affect the economic structure.

Financial Technology (Fintech) in Indonesia, is regulated by Bank Indonesia Regulation (PBI) No.19/12/PBI/2017, concerning transaction mechanisms, market support, investment, risk management, credit, funding, capital allocation, and financial facilities. The rapid increase in internet usage in 2020, triggered by the Covid-19

pandemic, prompted significant changes in people's activity patterns. The Indonesian Internet Service Providers Organization (APJII) noted that the number of people using the internet will be 221,563,479 users in 2024 out of a total population of 278,696,200 users.

Digital financial transactions, including through e-commerce platforms, have experienced a significant increase, considered the key to national economic recovery. The increase in the value of digital economic and financial transactions is the result of the ease of access and use of technology. From 2016 to 2021, Mobile Banking transactions increased by 300%, with the value of electronic money transactions growing by 30.44% to reach Rp 22.1 trillion in December 2020. Banking innovations regulated by OJK Number 12/POJK.03/2018 aim to make it easier for customers to access information and improve customer experience in digital banking services. The following is the development of Mobile Banking transaction volume in Indonesia for the period 2019 to 2023:

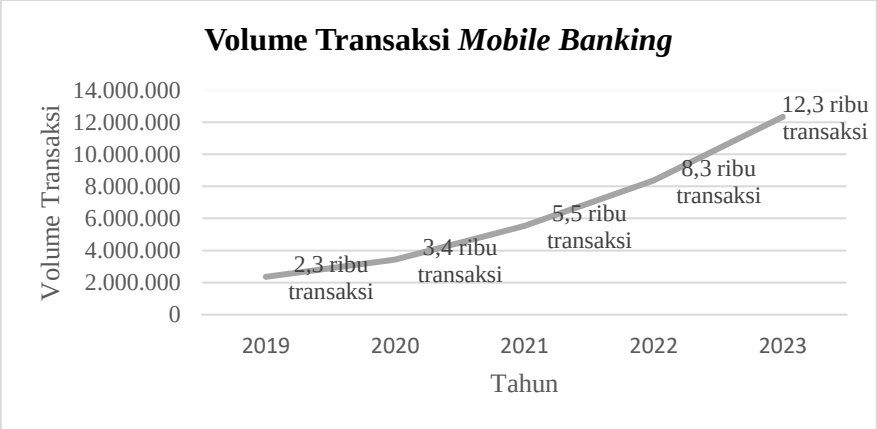

Figure 1. Volume Transaksi *Mobile Banking* Tahun 2019-2023

Source: Bank Indonesia in 2023 (Data processed by the author)

Data shows that Mobile Banking transaction volume increased from 2019 to 2023, with a significant increase in 2023, where the transaction volume reached 12,334,036 thousand transactions. This reflects the increasing dependence of the public on mobile platforms to conduct banking transactions. This trend shows the development of digitalization in the banking industry, with Mobile Banking being the top choice due to its convenience and accessibility.

This technology has been widely adopted by various banking companies in Indonesia, including Bank Rakyat Indonesia. In 2019, there was significant growth in the fintech sector in Indonesia, with many fintech companies continuing to introduce new innovations in financial services, including mobile banking services.

According to Bank Indonesia Regulation No. 13 of 2021, the condition and performance of banks are reflected in their financial performance. Assessment of the bank's financial performance is an important factor as a reflection of the bank to obtain profitability (Arimi & Mahfud, 2012).

This technology has been widely applied by various banking companies in Indonesia, one of which is Bank Rakyat Indonesia. Right in 2019, there was significant growth in the financial technology sector in Indonesia, where various fintech companies continued to introduce new innovations in financial services, including mobile banking services. Bank BRI is also actively developing mobile banking services with the aim of expanding the scope of services and improving their quality, in accordance with the ongoing fintech growth trend (Bank Rakyat Indonesia Annual Report, 2019).

Figure 2. Perkembangan Kinerja Keuangan Bank BRI

Source: Bank BRI Annual Report 2017-2023 (Data processed by the author)

Figure 2 shows the development of Bank BRI's financial performance from 2017 to 2023 as illustrated through the profitability ratio and NPL. Profitability decreased from 4.00% in 2017 and 2018 to 3.00% in 2019, reaching a low of 1.98% in 2020 due to the Covid-19 pandemic, before finally increasing again to 2.72% in 2021, and stabilizing at 4.00% in 2022 and 2023. On the other hand, the NPL ratio shows an increasing trend, from 2.00% in 2017 to 2.50% in 2018, 3.00% in 2019, slightly decreasing in 2020 due to the credit restructuring policy made by the Financial Services Authority (OJK), but rising again to 2.72% in 2021, and stable at around 3.00% in 2022 and 2023. According to Kasmir (2016), the lower the NPL rate in a bank, the credit risk that will be borne by the bank will also be low.

In addition to maintaining its financial performance, digital banking is also important in the banking world in improving its health level, one of which is because of the significant implications for bank marketing (Dootson, Peatson & Drennan, 2016), especially affecting the customer interface experience. Therefore, digital banking has a direct impact on customers and banks in terms of financial services. The benefits obtained include saving more operational costs, maintenance costs, and easy data access.

In achieving digitalization transformation, PT. Bank Rakyat Indonesia Tbk. continues to innovate business process digitalization (business process reengineering) which also provides support for environmental conservation. One of the first steps in supporting digital innovation is through BRImo SuperApps. Through a set of ideas carried out in the past year, PT. Bank Rakyat Indonesia Tbk. ini has generated 3.1 billion transactions. As of December 2023, the transaction value of brimo has reached IDR 4.16

trillion or grew by around 55.8% YoY on an annual basis (Year on Year) with FBI reaching IDR 2.43 trillion. Currently, brimo focuses on 8 (eight) segments of customer needs ranging from online onboarding, superstore finance, digital lending, lifestyle ecosystem, investment, customer engagement, subsidiary integration to branchless services.

METHOD

In this study, the method applied is quantitative research with data in the form of numerical guns, and uses statistical analysis to test hypotheses. This type of research is comparative with a quantitative approach. Sugiyono (2017) stated that comparative methods are a type of research that aims to compare the values of one or more independent variables among two or more populations, different samples, times, or a combination of all of them.

Descriptive Statistical Analysis

Referring to Sugiyono (2016), descriptive statistical analysis is applied in describing the value of independent variables and dependent variables in research. In this study, statistical calculations were carried out using SPSS software.

Normality Test

Ghozali (2016) stated that a crucial normality test is carried out before conducting further statistical testing to determine whether the data from the research variables have a normal distribution. This is particularly relevant in the context of regression models where the presence of normal distributions on independent, dependent, or both variables is key to accurate results. Commonly used methods, such as the Kolmogorov-Smirnov test, are suitable for large samples with significance levels set usually at 5%. Normality test results showing significance values (sig) greater than 0.05 indicate that the data is normally distributed, while smaller significance values indicate the opposite. This step is important before performing a differential test to ensure the validity of the statistical analysis carried out.

Paired Sample T-Test

Mengkuningtyas (2015) stated that the paired sample t-test was applied in order to evaluate the difference between the conditions before and after the implementation of Mobile Banking in financial ratios. If the significance value (sig) > 0.05, it means that there is no significant difference between financial performance before and after using Mobile Banking. On the other hand, if the significance value (sig) < 0.05, then there is a significant difference between financial performance before and after implementing Mobile Banking.

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

Table 1 Results of Descriptive Statistical Analysis Before and After Implementing Mobile Banking

Descriptive Statistics										
Rasio	Sebelum menerapkan *Mobile Banking*					Sesudah menerapkan *Mobile Banking*				
	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*	N	*Minimum*	*Maximum*	*Mean*	*Std. Deviation*
ROA	5	3.68	4.73	4.026	0.44433	5	1.98	3.93	3.178	0.81438
ROE	5	20.03	31.19	24.936	5.26629	5	11.05	22.93	18.238	4.58732
EPS	5	214	1030	541.4	424.5	5	151	398	281.2	94.455
NPL	5	1.69	2.14	1.996	0.17813	5	2.62	3.12	2.916	0.20367

Analysis Return on Asset (ROA):

The minimum ROA score before Mobile Banking dropped from 3.68 to 1.98, and the maximum value dropped from 4.73 to 3.93. The average ROA before Mobile Banking is 4,026, higher than after Mobile Banking which is 3,178. The standard deviation of ROA before Mobile Banking is 0.44433, indicating a data gap that is not far from average. After the implementation of Mobile Banking, the standard deviation of ROA is 0.81438, also showing a data gap that is not far from the average of 3.178.

Analysis Return on Equity (ROE):

The minimum ROE after Mobile Banking decreased from 20.03 to 11.05, and the maximum value decreased from 31.19 to 22.93. The average ROE dropped from 24,936 to 18,238. The standard deviation of ROE before Mobile Banking is 5.26629, indicating a data gap that is not far from average. After Mobile Banking, the standard deviation ROE is 4.58732, also showing a data gap that is not far from the average of 18.238.

Analysis Earning Per Share (EPS):

The EPS minimum value dropped from 214 to 151, and the maximum value dropped significantly from 1030 to 398. Average EPS dropped drastically from 424.5 to 94,455. The standard EPS deviation before Mobile Banking was 424.5, indicating a data gap that is not far from average. After Mobile Banking, the standard EPS deviation is 94.455, indicating a data gap that is not far from the average of 281.2.

Analysis Non-Performing Loan (NPL):

The NPL minimum value after Mobile Banking increased from 1.69 to 2.62, and the maximum value increased from 2.14 to 3.12. The average NPL increased from 1,996 to

2,916. The standard NPL deviation before Mobile Banking was 0.17813, indicating a data gap that is not far from average. After Mobile Banking, the standard NPL deviation is 0.20367, also showing a data gap that is not far from the average of 2.916.

Hasil Uji Normalitas

Table 2. Normality Test Results Before and After Implementing Mobile Banking

One-Sample Kolmogorov-Smirnov Test									
		Sebelum penerapan *Mobile Banking*				Sesudah penerapan *Mobile Banking*			
		ROA	ROE	EPS	NPL	ROA	ROE	EPS	NPL
N		5	5	5	5	5	5	5	5
Normal Parametersa,b	*Mean*	4.026	24.936	545.4	1.996	3.178	18.238	281.2	2.916
	Std. Deviation	0.44433	5.26629	420.757	0.17813	0.81438	4.58732	94.455	0.20367
Most Extreme Differences	*Absolute*	0.262	0.238	0.347	0.354	0.254	0.201	0.126	0.19
	Positive	0.262	0.238	0.347	0.209	0.178	0.153	0.116	0.158
	Negative	-0.218	-0.227	-0.25	-0.354	-0.254	-0.201	-0.126	-0.19
Test Statistic		0.262	0.238	0.347	0.354	0.254	0.201	0.126	0.19
Asymp. Sig. (2-tailed)		.200c,d	.200c,d	.048c	.040c	.200c,d	.200c,d	.200c,d	.200c,d

Referring to table 4.2, it is known that the results of the Kolmogorov-smirnov test show the value of Asymp. Sig. (2-tailed) on ROA, ROE, EPS, and NPL before the implementation of Mobile Banking and after the implementation of Mobile Banking > 0.05, then all variables are normally distributed.

Paired Sample T-Test Results

Table 4.3 Paired Sample T-Test Results Before and After Implementing Mobile Banking

Paired Samples Test								
	Mean	*Std. Deviation*	*Std. Error Mean*	*95% Confidence Interval of the Difference*		*t*	*df*	*Sig. (2-tailed)*
				Lower	Upper			

Pair 1	ROA-Sebelum - ROA-Sesudah	0.848	1.01529	0.45405	-0.41265	2.10865	1.868	4	0.135
Pair 2	ROE-Sebelum - ROE-Sesudah	6.698	8.87025	3.9669	-4.31588	17.71188	1.688	4	0.167
Pair 3	EPS-Sebelum - EPS-Sesudah	260.2	489.139	218.749	-347.146	867.546	1.189	4	0.3
Pair 4	NPL-Sebelum - NPL-Sesudah	-0.92	0.12309	0.05505	-1.07283	-0.76717	-16.713	4	0

Referring to table 4.3, it can be concluded that the significance value (Sig. 2-tailed) for ROA, ROE, and EPS > 0.05 which means that there is no significant difference. However, for NPLs, the significance value is 0, which is less than 0.05, so it can be concluded that there is a significant difference in NPLs.

Discussion

The analysis of ROA showed that the implementation of Mobile Banking did not provide a significant difference (0.135 > 0.05). This is in line with the results of Kevin Adriel Siagian's (2022) research, which shows that although the average ROA after the implementation of Mobile Banking is slightly higher (0.848), the increase is not significant. The Covid-19 pandemic has also contributed to Bank BRI's limitations in increasing ROA. During the Covid-19 pandemic, companies, especially Bank BRI, experienced a decrease in revenue due to restrictions on economic activities and decreased demand which affected ROA. After the Covid-19 pandemic, Bank BRI is considered to be able to stabilize the value of ROA again because ROA began to recover after the Covid-19 pandemic in 2021, although not significantly. This is due to the large infrastructure costs of Mobile Banking development and the labor costs of the information and technology sector which have been proven to increase after the existence of Mobile Banking. Based on Bank BRI's financial overview, it was recorded in other operating expenses that in 2018, the amount was Rp 22.42 million and increased after the existence of Mobile Banking in 2019 to Rp 24.23 million. This means that there was an increase of 8.07% in other operating expenses due to an increase in labor costs, especially the information and technology needed for the development of Mobile Banking. The medium period of time, which is about 5 years, which is considered too short and has an effect on the reduction in the value of Bank BRI's assets.

Analysis of ROE also showed that there was no significant difference (0.167 > 0.05). Although there was an increase in average ROE after the implementation of Mobile Banking (6,698), the effect was not significant. The Covid-19 pandemic has also affected Bank BRI's ROE performance, with restrictions on economic activities affecting

income and equity management. During the Covid-19 pandemic, companies, especially Bank BRI, experienced a decrease in revenue due to restrictions on economic activities and decreased demand which affected ROE. After the Covid-19 pandemic, Bank BRI is considered to be able to stabilize ROE, although not significantly. This is allegedly because Bank BRI has limitations in managing its equity. One of the main factors is the large investment cost for Mobile Banking infrastructure. The income from Mobile Banking is not enough to cover the capital in the medium term, which is about 5 years, which is considered too short. This period is considered too short to get an adequate return on investment, thus affecting the reduction in the value of Bank BRI's equity. The large use of equity for Mobile Banking infrastructure projects has reduced Bank BRI's flexibility in the face of adjustment to changing market conditions and pressured Bank BRI's ability to generate higher return value.

The EPS also shows that there is no significant difference (0.3 > 0.05). Although the average EPS increased after the implementation of Mobile Banking (260.2), the impact was not significant. The Covid-19 pandemic remains a factor affecting Bank BRI's revenue and profit management efficiency. During the Covid-19 pandemic, companies, especially Bank BRI, experienced a decrease in revenue due to restrictions on economic activities and a decrease in demand, which affected EPS. After the Covid-19 pandemic, Bank BRI is considered to be able to stabilize EPS again, although not significantly. This is because Bank BRI has limitations in managing profits because the increase in profit has not increased optimally. This is also due to increased operating expenses and affects the amount of profit generated so that the amount of dividends generated is not optimal.

Meanwhile, the analysis of NPLs indicates a significant difference (0.00 < 0.05). The average NPL after the implementation of Mobile Banking was lower (-0.92), indicating a significant improvement in credit quality. Mobile Banking assists Bank BRI in better credit management and reduces the risk of bad loans, despite fluctuations in the value of NPLs affected by economic conditions and credit restructuring policies during the Covid-19 pandemic. After the launch of Mobile Banking, Bank BRI can manage credit better because Mobile Banking plays a role in facilitating credit tracking and management, and reducing the risk of bad loans. Mobile Banking technology also allows for early detection of credit problems, which helps in reducing the value of NPLs. In addition, even though a year after the launch of Bank BRI's Mobile Banking, it was directly affected by the Covid-19 pandemic, the risk of increasing the value of NPLs was also minimized by the existence of the credit restructuring policy imposed by the Financial Services Authority (OJK). The existence of a credit restructuring policy can stabilize the service sector related to banking, especially Bank BRI, from economic pressure caused by the Covid-19 outbreak. This restructuring policy lasts until the end of 2023 because in 2022, the Financial Services Authority (OJK) still assesses that there is global economic uncertainty caused by global economic policy adjustments by the United States Central Bank (the Fed) and high inflation. This is reflected in NPLs in 2022 which experienced a significant decline even though Mobile Banking is considered to be

able to help reduce the value of NPLs. Overall, there is a significant difference after the implementation of Mobile Banking the NPL value is getting smaller even though the NPL value after Mobile Banking fluctuates.

CONCLUSION

This study aims to review the financial performance of Bank Rakyat Indonesia before and after implementing Mobile Banking and is reflected through the ratio of ROA, ROE, EPS, and NPL. The conclusions that can be drawn from this study include:
1. The implementation of Mobile Banking does not make a significant difference to ROA.
2. The implementation of Mobile Banking does not make a significant difference in ROE.
3. The implementation of Mobile Banking does not make a significant difference in EPS.
4. The implementation of Mobile Banking provides a significant difference in NPLs, with lower NPL ratios after implementation.

REFERENCE

Arimi, M., & Mahfud, M. K. (2012). *Analisis Faktor-Faktor yang Mempengaruhi Profitabilitas (ROA)*. Dipenogoro Journal of Management. Vol. 1 no 2.

Asosiasi Penyelenggara Jasa Internet Indonesia. (n.d.). *https://apjii.or.id/berita/d/apjii-jumlah-pengguna-internet-indonesia-tembus-221-juta-orang/*

Bank Indonesia. (2017). Laporan Tahunan: Tantangan dan Peluang *Financial Technology* di Indonesia.

Bank Indonesia. (2021). Peraturan Bank Indonesia Nomor 13/1/PB1/2021 tentang Kondisi dan Kinerja Bank

Dootson, P., Beatson, A., & Drennan, J. (2016). *The impact of digital advancement in banking industry marketing*. Journal of Research in Interactive Marketing, 10(4), 294-310. doi:10.1108/JRIM-01-2016-0001

Dukeshire, S., & Thurlow, J. (2010). *Metode Penelitian: Pendekatan Kuantitatif, Kualitatif, dan Campuran*. Jakarta: PT Gramedia Pustaka Utama.

Fauzi, M. N. (2021). *Dampak Pengembangan Mobile Banking terhadap Kinerja Keuangan Bank di Indonesia*. Jurnal Manajemen dan Keuangan, 14(3), 234-245.

Ghozali, I. (2016). *Aplikasi Analisis Multivariate dengan Program IBM SPSS 23*. Semarang: Badan Penerbit Universitas Diponegoro.

Hootsuite. (2021). *60 Percent Of The World's Population is Now Online. Wearesocial.Com. https://wearesocial.com/uk/blog/2021/04 /60-percent-of-the-worlds-population-isnowonline/*

Hutabarat, F. (2020). *Analisis Kinerja Keuangan Perusahaan*. Banten: Penerbit Desanta Muliavisitama.

Indopremier. (2021). *Transaksi Uang Elektronik Tumbuh 30,44% pada Desember 2020. https://www.indopremier.com/ipotnews/newsDetail.php?jdl=Transaksi_Uang_Elektronik__Tumbuh_30_44__pada_Desember_2020&news_id=129226&group_news=IPOTNEWS&news_date=&taging_subtype=PG002&name=&search=y_general&q=,&halaman=1.*

Kelly, K. (1998). *New Rules for The New Economy: 10 radical strategies for a connected world*. Cider Creek Books.

Kasmir. (2012). *Bank dan Lembaga Keuangan Lainnya*. Jakarta: PT Raja Grafindo Persada.

Kasmir. (2019). *Analisis Laporan Keuangan*. Depok: Rajawali Pers.

Mengkuningtyas. (2015). *Analisis Pengaruh Penerapan Mobile Banking terhadap Kinerja Keuangan Perusahaan*. Jakarta: PT Pustaka Binaman Pressindo.

Pandemi Pendorong Digitalisasi. (n.d.). *https://www.bi.go.id/id/publikasi/ruang-media/cerita-bi/Pages/Pandemi-Pendorong-Digitalisasi.aspx*

Peter, S. (2010). *Introduction to Financial Institutions*. New York: McGraw-Hill.

Riswandi, & Budi Agus. (2005). *Mobile Banking: Layanan Perbankan Melalui Ponsel*. Jurnal Inovasi Teknologi Informasi, 1(1), 45-56.

Rusmanto. (2012). *Pengantar Manajemen Keuangan*. Bandung: Alfabeta.

Siagian, K. A. (2022). *Analisis Dampak Pengembangan Mobile Banking terhadap Kinerja Keuangan Bank*. Jurnal Ekonomi dan Bisnis, 15(2), 157-168.

Simanungkalit, E. S. M. (2021). *Pengaruh Implementasi Mobile Banking terhadap Kinerja Keuangan Bank.* Jurnal Ekonomi dan Keuangan, 16(4), 287-298.

Sugiyono. (2017). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.

Sugiyono. (2019). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.

Sutrisno, J. (2009). *Manajemen Keuangan Perusahaan: Teori dan Praktik*. Jakarta: PT. Ghalia Indonesia.

Undang-Undang Republik Indonesia Nomor 10 Tahun 1998. (1998). Tentang Perubahan Atas Undang-Undang Nomor 7 Tahun 1992 Tentang Perbankan

PWC. (2017). *The Future of Financial Services: Financial Technology*.

Wilson, J. (2017). *Understanding Financial Technology: The Evolution of FinTech and Its Impact on the Financial Services Industry*. Wiley.

Wiratna. (2014). *Metodologi Penelitian: Konsep dan Contoh Penelitian Kualitatif dan Kuantitatif*. Jakarta: PT Rajawali Pers.

Yulianingtyas, D. (2016). *Pengaruh Corporate Social Responsibility Dan Good Corporate Governance Terhadap Kinerja Keuangan*. Jurnal Ilmu Dan Riset Manajemen, 5(10), 81–98

Yulianingtyas, S. (2016). *Aspek Kinerja Perusahaan: Pendekatan Keuangan dan Non-Keuangan*. Jurnal Manajemen Bisnis, 3(2), 78-91.