

Financial Performance Transformation of PT Bank Mandiri (Persero) Tbk: A Comparative Analysis Before and After the Use of Livin by Mandiri Mobile Banking.

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Abstract

This study aims to compare the financial performance of PT Bank Mandiri (Persero) Tbk before and after the use of Livin by Mandiri. The method used in this study is a quantitative method using secondary data in the form of quarterly financial statements for the three years preceding and following the implementation of the Livin by Mandiri mobile banking service (Livin by Mandiri). Indicators of financial ratios used in this study include: ROA, NIM, BOPO, NPL, and LDR. Sampling technique using saturated sampling method. Hypothesis testing was conducted using the Wilcoxon Signed Rank Test. The results showed a significant difference in financial performance as measured by ROA, BOPO, and NPL before and after the use of mobile banking services (Livin by Mandiri). For financial performance measured by NIM and LDR there is no significant difference before and after the use of mobile banking services (Livin by Mandiri). The results of this study are expected to be a source of information and help in managing the financial performance of PT Bank Mandiri (Persero) Tbk after the use of Livin by Mandiri.

Keywords: *Mobile Banking (Livin by Mandiri), ROA, NIM, BOPO, NPL, LDR, Financial Performance, Wilcoxon Signed Rank Test.*

1. Introduction

The development of Information Technology has a significant impact, especially on the banking industry, which is one of the industries that is experiencing very rapid changes due to technological changes (Fristiani et al., 2020). The rapid advancement of information technology encourages the banking sector to innovate to provide optimal services to its customers. Various financial institutions both banks and non-bank financial institutions are competing to create various new financial products to improve the quality of their financial performance. One of the innovations that has experienced rapid growth in the banking industry is the Mobile Banking service, which allows customers to easily conduct banking transactions through smartphone devices. Individuals with limited or no access to banking services are often underserved. This situation can contribute to uneven economic development (Ansori, 2019). In an effort to expand the network and increase access to banking services for the public, Bank Mandiri encourages to continue to launch various digital financial products aimed at strengthening household consumption in the context of National Economic Recovery and improving corporate financial performance (Bank Mandiri, 2025).

Responding to the situation, PT Bank Mandiri (Persero) Tbk launched a new digital financial product innovation known as Livin by Mandiri on October 2, 2021. Livin by Mandiri is used as a refinement of

the Mandiri Online application which aims to improve the convenience and comfort of customers in accessing corporate banking services in the bank 4.0 era (Bank Mandiri, 2025). It is expected that this innovation will not only facilitate daily transactions, but also become an adaptive service to new customer transaction habits. Furthermore, the launch of Livin by Mandiri was expected to accelerate economic recovery. This was particularly aimed at improving the banking industry's financial performance, which had declined due to the COVID-19 pandemic.

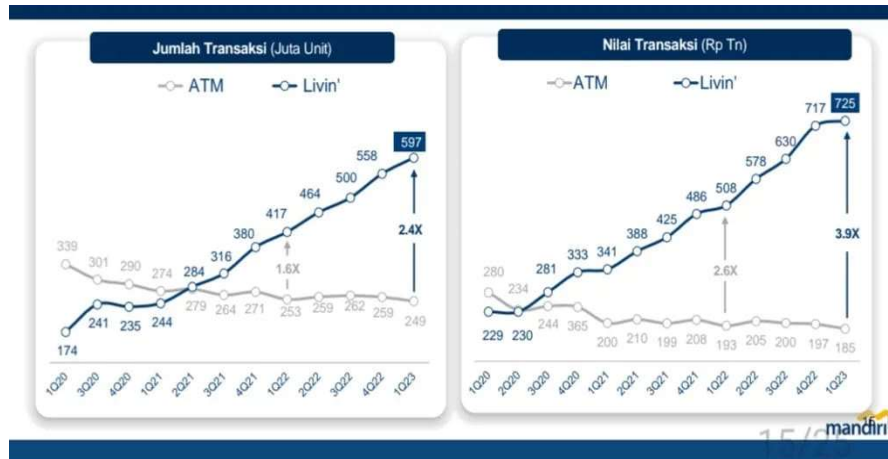


Figure 1. Comparison of the growth in the number and transaction value of ATM and Livin by Mandiri services.

The data reflect significant changes in customer preferences towards the use of digital services. With increasing volume and digital transactions, this can indirectly strengthen profitability through optimizing cost structures, increasing customer loyalty, and using transaction data for product development that is more in line with market needs. Therefore, digital transformation is not only a necessity, but also a source of competitive advantage that supports sustainable growth and financial performance of companies.

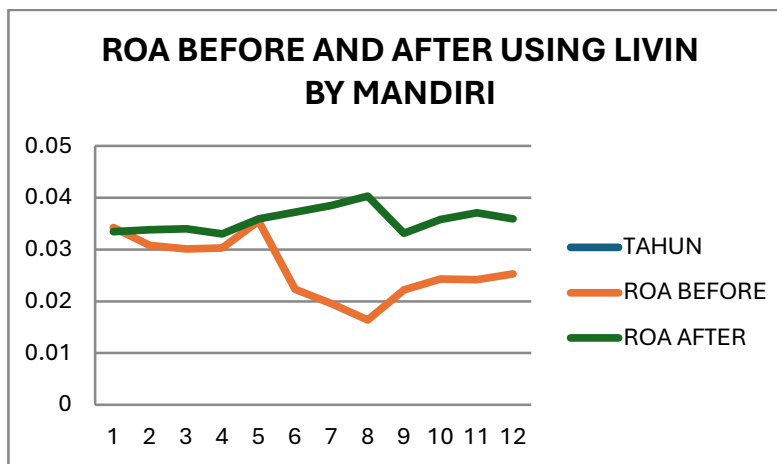


Figure 2. ROA before and after using Livin by Mandiri.

Before using the Livin by Mandiri application, there was a significant decrease. This decline occurs when a company's assets cannot be effectively managed to generate optimal profits for the company. After using the Livin by Mandiri application, the ROA ratio showed an upward trend. This increase shows the effectiveness of using the Livin by Mandiri application. Previous research related to the use of mobile banking conducted by Santosa et al. (2017), showed significant ROA differences before and after the use of mobile banking. However, in the study of Kustina et al. (2022), it was shown that there was no significant difference in ROA before and after the use of mobile banking.

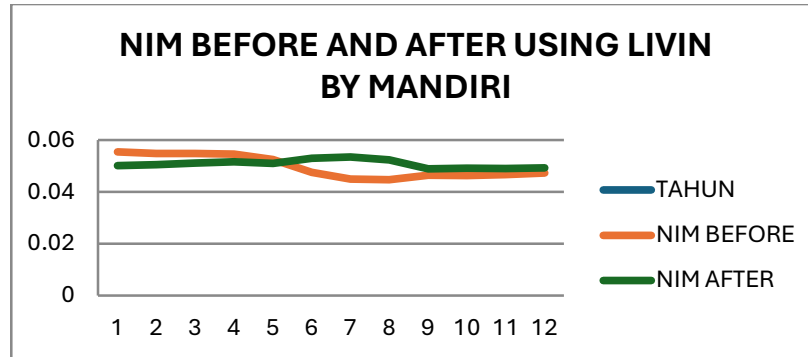


Figure 3. *NIM before and after using Livin by Mandiri.*

Before using the Livin by Mandiri application, the NIM ratio decreased. This decline indicates that the company or financial institution has reduced its ability to generate net interest income from its productive assets. After using the Livin by Mandiri application, there was a significant increase, which showed that the company was able to effectively and efficiently manage its productive assets to generate interest income that exceeded the interest expense they had to bear. Previous research related to the use of mobile banking was conducted by Ferita (2023), with results showing significant differences in NIM before and after using mobile banking. However, in Kristanti and Kusumaningrum's (2024) study, the results showed that there were no significant differences in NIM before and after using mobile banking.

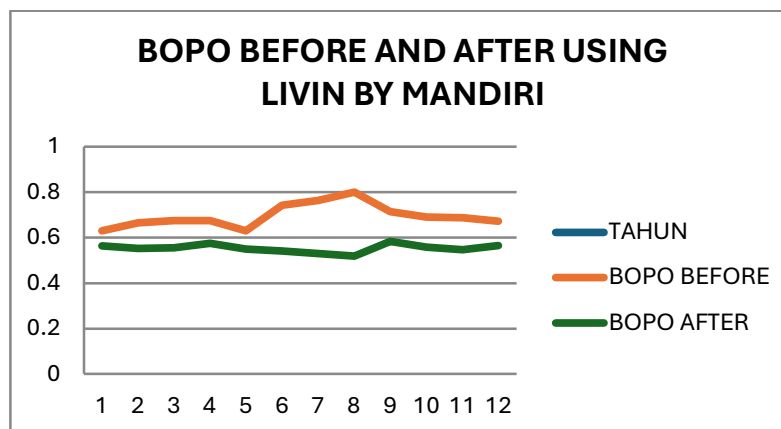


Figure 4. *BOPO before and after using Livin by Mandiri.*

Before the use of the Livin by Mandiri application, there were complex fluctuations and trends, where the operating costs borne by the company were larger and increased compared to the income obtained. After using the Livin by Mandiri application, there is an increase in operational efficiency. Previous research related to the use of mobile banking conducted by Wibowo et al. (2023) showed significant differences in BOPO before and after the use of mobile banking. However, the Kristianti and Tulenan's (2021) study showed no significant difference in BOPO before and after using mobile banking.

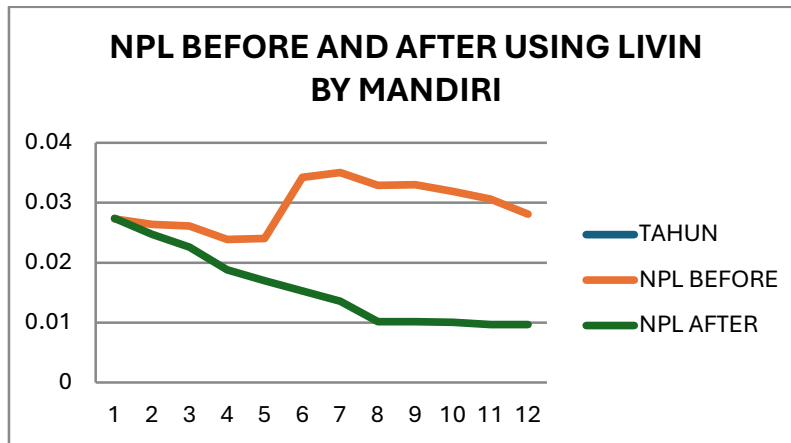


Figure 5. NPL before and after using Livin by Mandiri

Before using Livin by Mandiri, fluctuations occur. After using the Livin by Mandiri application, there was a consistent decrease. The decrease in the NPL ratio reflects improved financial performance and better risk management in the loan portfolio. Previous research related to the use of mobile banking conducted by Kristanti and Kusumaningrum (2024) showed significant differences in NPL ratios before and after using mobile banking. However, in Setyaningsih's (2018) study, the results showed no significant difference in NPL ratios before and after using mobile banking.

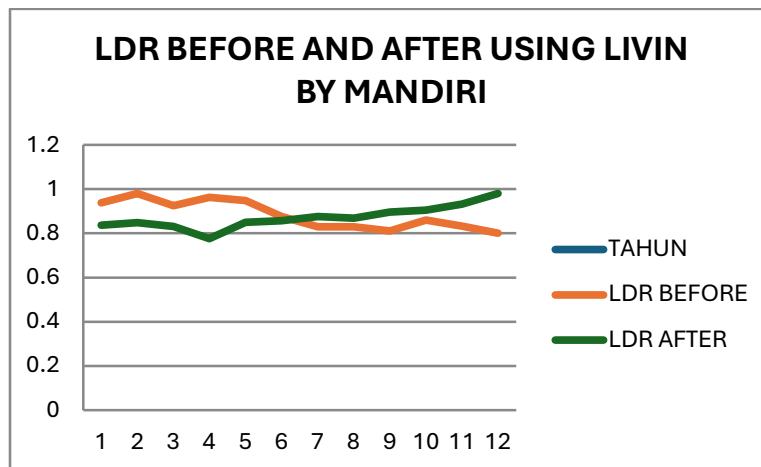


Figure 6. LDR before and after using Livin by Mandiri.

Before using the Livin by Mandiri application, there were inconsistent trends, indicating that financial institutions had not been optimal in providing loans. After using the Livin application, there is an increasing trend that reflects the effectiveness of the Livin by Mandiri application in improving LDR performance. Previous research related to the use of mobile banking was conducted by Cahyani (2020), with results showing significant differences in LDR before and after using mobile banking. However, in the Afifah and Taufiq's (2022) study, the results showed that there was no significant difference in LDR before and after using mobile banking.

Based on the description of the background above, there are problems at the level of financial performance of PT Bank Mandiri (Persero) Tbk before and after the use of Livin by Mandiri and differences of opinion from previous research related to the use of mobile banking. So that the problem of this research can be formulated "are there differences in the financial performance of PT Bank Mandiri (Persero) Tbk before and after the use of mobile banking (Livin by Mandiri) in terms of ROA, NIM, BOPO, NPL, and LDR?"

2. Literature Review

2.1. Signaling Theory

Signaling theory was developed by Ross (1977). This theory assumes that managers possess superior and more detailed information regarding the company's development compared to investors. This theory focuses on ways to find solutions to information asymmetry problems in a competitive corporate environment (Bae et al., 2018).

2.2. Mobile Banking

Mobile banking, in the view of Alalwan et al. (2017), is a financial transaction conducted by accessing a bank's website using a mobile device to check account balances, make transfers between accounts, and pay various types of bills. Mobile banking allows customers to conduct financial transactions via mobile devices, such as smartphones or tablets (Rianita & Fasa, 2024).

2.3. Livin by Mandiri

Livin by Mandiri is a digital banking service launched by Bank Mandiri in 2021 as a replacement for the Mandiri Online app. Since its launch, Livin has grown into an adaptive and solution-oriented financial Super App to help meet the increasingly diverse needs of customers (Bank Mandiri, 2025). This app is an important milestone in the digital transformation of retail banking at Bank Mandiri, which continues to be improved into a digital channel that is highly trusted by customers.

2.4. Financial Performance

Financial performance refers to the analysis carried out to evaluate the extent to which the company has carried out financial activities in accordance with applicable regulations properly and correctly (Trianto, 2017). Financial performance reflects the financial condition in a certain period, which includes aspects of fund raising and distribution of funds which are generally measured through indicators of capital adequacy, liquidity, and profitability (Saladin & Damayanti, 2019).

2.5. Comparative Analysis

Comparative analysis is an analysis method performed by comparing similar elements (financial statements) from several consecutive periods, including profit/loss and balance sheet comparisons (Sari & Hidayat, 2022).

2.6. Research Variables

2.6.1. Return on Assets (ROA)

ROA is a financial ratio used to evaluate the company's ability to obtain profits by utilizing its assets (Rashinta Messaluna et al., 2023).

$$ROA = \frac{\text{Net profit}}{\text{Total Assets}} \times 100\%$$

Table 1. Composite Rating Weight ROA Ratio.

Very Healthy	ROA > 1,5%
Healthy	1,25% < ROA ≤ 1,5%
Quite Healthy	0,5% < ROA ≤ 1,25%
Less Healthy	0% < ROA ≤ 0,5%
Unhealthy	ROA ≤ 0%

2.6.2. Net Interest Margin (NIM)

According to Rohmiati et al. (2019), NIM is a ratio that shows the ability of bank management to manage productive assets in obtaining net interest income. The ratio of NIM reflects the bank's ability to generate interest income by considering the role of the company in lending (Salsabila & Juwita, 2022).

$$1 = \frac{(IR - IE)}{\text{Average earning Assets}} \times 100\%$$

Table 2. Composite Rating Weight NIM Ratio.

Very Healthy	NIM > 3%
Healthy	2% ≥ NIM > 3%
Quite Healthy	1,5% ≥ NIM > 2%
Less Healthy	0% ≥ NIM > 1,5%
Unhealthy	0% ≤ NIM

2.6.3 Operating expenses Operating Income (BOPO)

The ratio of BOPO is a financial ratio that compares operating expenses incurred with operating income obtained by the company (Malik et al., 2024).

$$BOPO = \frac{\text{Operating Expenses}}{\text{Operating Income}} \times 100\%$$

Table 3: Composite Rating Weight BOPO Ratio

Very Healthy	BOPO < 94%
Healthy	94% ≤ BOPO < 95%
Quite Healthy	95% ≤ BOPO < 96%
Less Healthy	96% ≤ BOPO < 97%
Unhealthy	BOPO ≥ 97%

2.6.4. Non Performing Loan (NPL)

NPL is used to evaluate the health of financial institutions that reflect problems in the loan payment process, caused by economic crises, which result in an increase in the percentage of non-performing loans (Fatmawati & Lestari, 2023). The NPL ratio is used to evaluate a bank's credit risk level without considering reserves set aside to anticipate losses (Ulfa et al., 2017).

$$\text{Ratio NPL} = \frac{\text{Total NPL}}{\text{Total Credit}} \times 100\%$$

Table 4. Composite Rating Weight NPL Ratio.

Very Healthy	NPL < 2%
Healthy	2% < NPL < 5%
Quite Healthy	5% < NPL < 8%
Less Healthy	8% < NPL < 12%
Unhealthy	NPL > 12%

2.6.5. Loan to Deposit Ratio (LDR)

LDR is used to assess the ratio between the amount of credit disbursed and third-party funds received by the company (Wulandari Danu Lestari and R. Gunawan Setianegara. 2020). LDR aims to evaluate the extent to which banks can manage risks related to debtors' payments to banking institutions (Fatmawati and Lestari, 2023).

$$LDR = \frac{\text{Number of Credits Granted}}{(\text{Total Capital} + \text{Total Third Party Funds})} \times 100\%$$

Table 5. Composite Rating Weight LDR Ratio.

Very Healthy	$LDR \leq 75\%$
Healthy	$75\% < LDR \leq 85\%$
Quite Healthy	$85\% < LDR \leq 100\%$
Less Healthy	$100\% < LDR \leq 120\%$
Unhealthy	$LDR \geq 120\%$

2.7. Research Framework

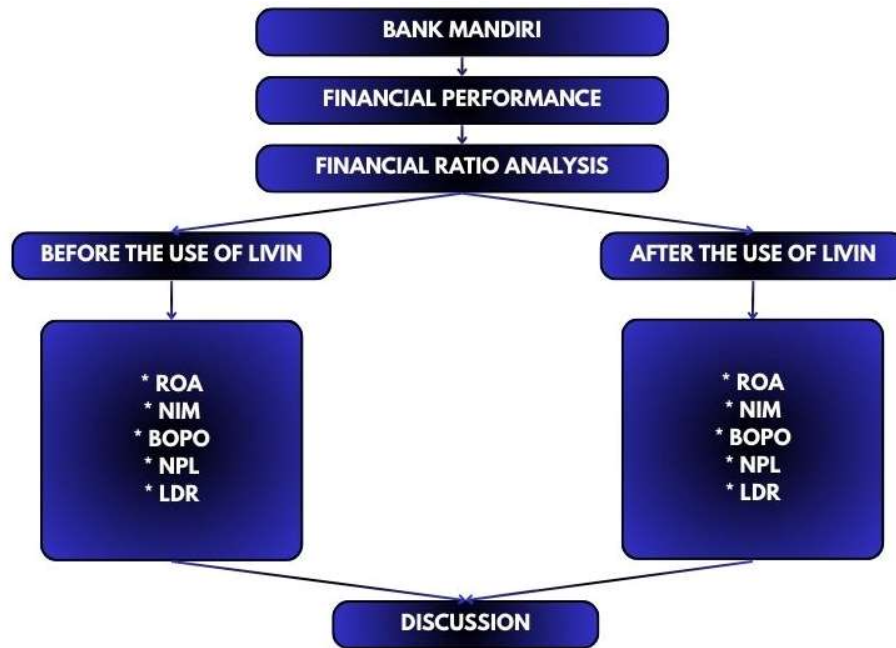


Figure 7. Frame Of Mind.

Source: Processed Data (2025)

2.8. Hypothesis

- H1: There are significant differences before and after the use of Livin by Mandiri seen from the ROA.
- H2: There is a significant difference before and after the use of Livin by Mandiri seen from the NIM.
- H3: There are significant differences before and after the use of Livin by Mandiri in terms of BOPO.
- H4: There are significant differences before and after the use of Livin by Mandiri in terms of NPL.
- H5: There is a significant difference before and after the use of Livin by Mandiri seen from the LDR.

3. Methods

This study uses a comparative research design with a quantitative approach. Comparative research is a comparative study, in which data collected from a population sample is analyzed using statistical methods, and the results of the analysis are then interpreted (Nugroho, 2018). Comparative research aims to identify whether there are differences in certain variables by comparing one condition with another (Mukhid, 2021). Comparative research in this study aims to describe the differences in financial performance at PT Bank Mandiri (Persero) Tbk, before and after the use of Livin by Mandiri for the period from the first quarter of 2019 to the fourth quarter of 2024. The data used in this study is secondary data taken from the company's financial reports through various media and the official website of PT Bank Mandiri (Persero) Tbk. Saturated sampling was used for sampling. Satisfactory sampling is a sampling technique in which all members of the population selected as samples number less than 30 people (Messaluna, 2023).

Descriptive statistical analysis in the form of minimum, maximum, average, and standard deviation values. Hypothesis testing tools use the Wilcoxon Signed Rank Test with the variables ROA, NIM, BOPO, NPL, and LDR. The Wilcoxon Signed Rank Test is used when the research data does not meet the assumptions of normal distribution. This test aims to identify differences between two conditions or treatments in a study. The decision criteria for testing the Wilcoxon Signed Rank Test are as follows:

If the value of t-statistic is greater than the value of r table 5% = 1.96 or if the value of p The result of the significance value of LDR ratio is greater than the significance level (0.583 > 0.05) value is less than 0.05%, it can be concluded that there is a significant difference. If the value of T statistic is smaller than the value of r table 5% = 1.96 or if the value of p-value is more than 0.05%, it can be concluded that there is no significant difference.

4. Results

4.1. Descriptive Statistical

Table 6. Result of Descriptive Statistics.

Description		ROA (%)	NIM (%)	BOPO (%)	NPL (%)	LDR (%)
N	Before	12				
	After	12				
Minimum	Before	1,64	4,48	63,01	2,39	80,04
	After	3,30	4,89	51,88	0,97	77,61
Maximum	Before	3,55	5,55	80,03	3,50	97,94
	After	4,03	5,35	58,38	2,74	98,04
Mean	Before	2,6258	4,9725	69,5525	2,9450	88,3058
	After	3,5667	5,0842	55,3108	1,5775	87,1283
StandarDevias i	Before	0,59098	0,43401	5,13465	0,39620	6,44264
	After	0,23184	0,15877	1,80979	0,63615	5,25808

Source: Processed Data (2025)

Table 6 shows the results of descriptive statistical analysis covering ROA, NIM, BOPO, NPL, and LDR. For ROA, the minimum value before using Livin by Mandiri was 1.64, the maximum value was 3.55 with an average of 2.6258 and a standard deviation of 0.59098. After using Livin by Mandiri, the minimum ROA value was 3.30, the maximum value was 4.03, with an average of 3.5667 and a standard deviation of 0.23184.

The NIM before using Livin by Mandiri had a minimum value of 4.48, a maximum of 5.55, with an average of 4.9725 and a standard deviation of 0.43401. After using Livin by Mandiri, the minimum NIM value is 4.89, the maximum value is 5.35, with an average of 5.0842 and a standard deviation of 0.15877.

Before using Livin by Mandiri, the minimum BOPO value was 63.01, the maximum value was 80.03, with an average of 69.5525 and a standard deviation of 5.13465. After using Livin by Mandiri, the minimum BOPO value is 51.88, the maximum value is 58.38, with an average of 55.3108 and a standard deviation of 1.80979.

Before using Livin by Mandiri, the minimum NPL value was 2.39, the maximum value was 3.50, with an average of 2.9450 and a standard deviation of 0.39620. After using Livin by Mandiri, the minimum NPL value is 0.97, the maximum is 2.74, with an average of 1.5775 and a standard deviation of 0.63615.

Before using Livin by Mandiri, the LDR had a minimum value of 80.04, a maximum value of 97.94, with an average of 88.3058 and a standard deviation of 6.44264. After using Livin by Mandiri, the minimum LDR value is 77.61, maximum 98.04 with an average of 87.1283 and a standard deviation of 5.25808.

4.2. Hypotheses Testing

The results of hypotheses testing using the Wilcoxon Signed Rank test to answer questions about whether or not there are significant differences in financial performance in the sample results for the variables studied before and after the use Livin by Mandiri, as follows:

Table 7. Hypothesis Analysis.

WILCOXON SIGNED RANK TEST				
Hypotheses	Significance (P-Value)	Decision	Mean Ranks	
			(+)	(-)
H1: There is a significant difference in financial performance seen from ROA after using the Livin by Mandiri application.	0.004	Accepted (P < 0.05)	6.91	2.00
H2: There is no significant difference in financial performance seen from the NIM ratio after using Livin by Mandiri	0.055	Rejected (P > 0.05)	6.64	6.30
H3: There is a significant difference in financial performance seen from BOPO after using the Livin by Mandiri application.	0.002	Accepted (P < 0.05)	6.50	0.00
H4: There is a significant difference in financial performance seen from NPL after using the Livin by Mandiri application.	0.003	Accepted (P < 0.05)	7.00	1.00
H5: There is no significant difference in financial performance seen from the LDR ratio after using Livin by Mandiri	0,583	Rejected (P > 0.05)	7.67	5.33

5. Discussions

5.1. Return On Assets

The first hypothesis answers the research hypothesis about the ROA ratio. The significance value of the ROA ratio is less than the significance level ($0.004 < 0.05$). Therefore, H1 is accepted, indicating a significant difference in financial performance following the implementation of Livin by Mandiri. There is a significant difference in financial performance measured by ROA, with an increase in the average value from 2.6258 to 3.5667. The increase in the average ROA demonstrates this improvement. Previous research has findings related to the use of mobile banking conducted by Wilda Rahmadhani Santosa, Jeni Susyanti, SE., MM., BKP, Afi Rachmat Slamet, SE., MM. (2017), where there are significant differences in ROA before and after the use of mobile banking Livin by Mandiri. These findings suggest that the implementation of the Livin by Mandiri application improved the company's efficiency in managing its assets to generate profit.

5.2. Net Interest Margin

The second hypothesis of this study is used to answer the research hypothesis regarding the NIM ratio. The significance value of the NIM ratio is greater than the significance level ($0.055 > 0.05$). Therefore, H2 is rejected, meaning that there is no significant difference after using Livin by Mandiri. There is no significant difference in financial performance as measured by the NIM ratio, based on the average value before use of 4.9725 to 5.0842. The average result shows a health indicator ratio $> 3\%$, which indicates that the NIM ratio before and after using Livin by Mandiri is still in the very healthy category. Previous research has used mobile banking conducted by Kristanti and Kusumaningrum (2024), the results show that there is no significant

difference in NIM before and after using Livin by Mandiri. These findings indicate that after using the Livin by Mandiri application the NIM value is still equally limited to the very healthy category.

5.3. Operating Expenses Operating Income

The third hypothesis of this study was used to answer the hypothesis of research on the ratio of BoPo. The significance value of BoPo ratio is smaller than the significance level ($0.002 < 0.05$). Therefore, H3 is accepted, that is, there is a significant difference after using Livin. There was a significant difference in financial performance measured by BOPO, which showed a decrease in the average value from 69.5525 to 53.3108, meaning that after Mandiri used Livin, Bank Mandiri's financial performance improved. Previous research related to the use of mobile banking conducted by Dedi Wibowo, Ilham Wanakusuma, Saur C. Simamora. (2023) supports the results of a study showing significant differences in BOPO before and after the use of mobile banking. These findings show that after using the Livin by Mandiri application, companies are more efficient in managing their operating costs to earn revenue.

5.4. Non Performing Loan

The fourth hypothesis of this study was used to answer the research hypothesis about the NPL ratio. The significance value of NPL ratio is smaller than the significance level ($0.003 < 0.05$). Therefore, H4 is accepted, indicating a significant difference after using Livin. There was a significant difference in financial performance as measured by the NPL ratio, which showed a decrease in the average value from 2.9450 to 1.5575. That is, after using Livin, the amount of NPLs decreases compared to the total loan disbursed. Previous research related to the use of mobile banking conducted by Kristanti and Kusumaningrum (2024) shows a significant difference in the NPL ratio before and after using mobile banking. These findings indicate that after using the Livin by Mandiri application, the bank's credit quality is getting better, which is characterized by a decrease in the number of problem loans.

5.5. Loan to Deposit Ratio

The fifth hypothesis of this study was used to answer the research hypothesis about the LDR ratio. The result of the significance value of LDR ratio is greater than the significance level ($0.583 > 0.05$). Therefore, H5 is rejected, so there is no significant difference after using Livin by Mandiri. There was no significant difference in financial performance as measured by the Loan to Deposit Ratio seen from the average value before the use of Livin by Mandiri of 88.3053 to 87.1283. The average results showed a health rating ratio between 85% to $< 100\%$ which indicates that the LDR ratio before and after the use of Livin by Mandiri is still quite healthy. Previous research has used mobile banking carried out by Rohmaniah Nova Nur Afifah (2022), the results show that there is no significant difference in LDR before and after using mobile banking. These findings indicate that before and after the use of Livin by Mandiri LDR values are still limited to a fairly healthy category.

5.6. Study Limitations and Future Research Agenda

Limitations in this study is the limited indicators of financial ratios used in the measurement of comparative financial performance of Bank Mandiri before and after the use of mobile banking services (Livin by Mandiri), where in this study the authors took only 5 (five) indicators of financial ratios such as ROA, NIM, BOPO, before and after the use of services Livin by Mandiri.

It is expected that future research will be able to use other financial ratio indicators such as third party funds (DPK), ROE, Laborcost, CAR and many other financial ratios that can be used to measure financial performance before and after using mobile banking services. So that later it can provide a comprehensive overview of the financial performance of Bank Mandiri before and after the use Livin by Mandiri.

6. Conclusion

This study set out to test whether PT Bank Mandiri (Persero) Tbk's financial performance differs before and after the introduction of Livin by Mandiri. Restated, our objective was to examine pre- versus post-

Livin shifts in five ratios: ROA, NIM, BOPO, NPL, and LDR; using 24 quarterly observations (12 before; 12 after) and Wilcoxon Signed Rank tests. The evidence meets that objective: post-Livin performance shows higher ROA, lower BOPO, and lower NPL, indicating stronger asset profitability, improved operating efficiency, and better credit risk quality. By contrast, NIM and LDR exhibit no statistically significant change, suggesting that Livin's gains have not (yet) flowed through wider interest spreads or materially altered intermediation intensity. Taken together, the results imply that the platform's value has arrived primarily through process digitisation, cost discipline, and risk analytics, rather than pricing power or balance-sheet reallocation. For managers, the priority is to consolidate these efficiency and credit-quality gains as they pursue targeted asset-mix and pricing initiatives so as to lift margins without compromising risk appetite. Thus, the initial objective: establishing whether financial performance differs before and after Livin is supported, with improvements concentrated in ROA, BOPO, and NPL, and stability in NIM and LDR.

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