Research Article

Green Banking And Profitability (Banks Registered On The Sri-Kehati Index In Indonesia Stock Exchange 2015 - 2019)

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Article History: Received: 10 January 2021; Revised: 12 February 2021; Accepted: 27 March 2021; Published online: 20 April 2021

Abstract: This study aims to determine the effect of green banking on the profitability of banks listed on the SRI-Kehati Index on the Indonesia Stock Exchange 2015 - 2019. The sampling technique used purposive sampling, obtained 6 banks. Methods of data analysis using software e-views version 10. The test results show that green banking, which is proxied by the green banking index, has a positive effect on profitability, which is proxied by ROA.

Keywords: Green Banking, Green Banking Index, Profitability, ROA

1. Introduction

A bank is an intermediary institution between parties that have excess funds and lack of funds formed to advance the economy of a country. This can be seen from the development of the amount of funds distribution and the total assets as follows.

Table 1.1.
Distribution of Funds and Total Assets - Commercial Banks
2016 - 2019 (Billion Rp.)

	2016	2017	2018	2019	Nov 2020
Distribution of Funds	6,570,903	7,177,549	7,667,803	8,280,812	9,018,532
Total Asset	6,729,799	7,387,634	7,913,491	8,562,974	9,053,446

Source: OJK 2021 (processed)

One form of distribution of funds is that credit extended to third parties has also continued to increase, as shown in table 1.2.

Table 1.2.
Credit to The Third Party - Commercial Banks
2016 - 2019 (Billion Rp.)

Distribution of Funds	2016	2017	2018	2019	Nov 2020
Credit to The Third Party:	**4,377,195**	**4,737,944**	**5,294,882**	**5,616,992**	**5,447,491**
- Rupiah	3,736,609	4,044,724	4,494,416	4,830,794	4,690,509
- Foreign Exchange	640,586	693,220	800,466	786,198	756,982

Source: OJK 2021 (processed)

The growth in credit to third parties indicates the need for funds to develop businesses in various sectors. It is feared that the increase in development will not pay attention to the sustainability of the surrounding environment. Therefore, credit to third parties will be a problem if used for development that damages the environment (Radyati, 2014; Vizcaino et al., 2019), (Maramis, 2016), dan (Chan, 2018).

The economy and the environment are major risks to the world, so the negative impact of environmental damage from a growing economy must be minimized. In response to Law no. 32 of 2009 concerning Environmental Protection and Management, Bank Indonesia as the central bank has an important role in developing environmentally friendly banking (green banking) (Waas, 2013).

Green banking is a banking practice where the state and nation will get better environmental benefits. An orthodox bank becomes a green bank by directing its main activities towards environmental improvement. Banking can act as an intermediary for economic development and environmental protection by participating in promoting environmental sustainability and socially responsible investment (Lalon, 2015).

Green Banking has a broader scope, not only green or related to environmental development, but also includes community empowerment towards a better social life. Green Banking is defined as banking in running its business based on the principles of sustainable development. Especially in credit and financing, namely the existence of an ecological balance (environment), human welfare, and socio-cultural development of the community (Sekaryuni, 2011).

The main business of a bank is to distribute credit to parties in need. Loans disbursed are expected to provide benefits for banks. Along with credit disbursed, bank profits have increased as in table 1.3.

Table 1.3.
Profit/Loss After Estimation of tax - Commercial Banks
2016 - 2019 (Billion Rp.)

	2016	2017	2018	2019	Nov 2020
Profit/Loss After Estimation of tax	106,544	131,156	150,013	156,487	98,914

Source: OJK 2021 (processed)

One measure of bank performance is the bank's ability to obtain profit (profitability) on its assets (return on assets). The development of ROA tends to increase as in table 1.4.

Tabel 1.4.
Commercial Banks Performance
2016 - 2019 (%)

	2016	2017	2018	2019	Nov 2020
Return on Assets	2.23	2.45	2.55	2.47	1.64

Source: OJK 2021 (processed)

Previous research on the effect of credit on profitability is presented as follows. The results showed that credit to third parties did not affect profitability, including Sukma (2013), Risha (2013), Hermina and Suprianto (2016), Akbar, Moeljadi, and Djazuli (2018), Kulsum and Muniarty (2020), and Steven and Toni (2020).

The results showed that credit to third parties had a negative effect on profitability, including: Anggreni and Suardhika (2014), Paramitha, Suwendra, and Yudiaatmaja (2014), Rahmi (2014), Prasetyo and Darmayanti (2015), Buchory (2015), Herlina, Nugraha, and Purnamasari (2016), Ariwidanta (2016), Putrianingsih and Yulianto (2016), Sukmawati and Purbawangsa (2016), Agustini, Wiagustini, and Purbawangsa (2017), Akter and Roy (2017), Pinasti and Mustikawati (2018), and Inggawati, Lusy, and Hermanto (2018).

The results showed that credit to third parties had a positive effect on profitability including Agustiningrum (2012), Sudiyatno (2013), Septiarini and Ramantha (2014), Makaombohe, Ilat, and Sabijono (2014), Negara and Sujana (2014), Rengasamy (2014), Suardita and Putri (2015), Patmiwati, Yuesti, and Sudiartana (2016), Pratiwi and Wiagustini (2016), Ibrahim (2017), Parenrengi and Hendratni (2018), and Anggari and Dana (2020),

The results showed that credit to third parties had an effect on profitability: Bhatia, Mahajan, and Chander (2012), Prasanjaya and Ramantha (2013), Sigid and Suprapto (2013), Dewi, Herawati, AK, and Sulindawati (2015), Christaria and Kurnia (2016), Setiawan and Hermanto (2017), Widyastuti, Purwana, and Zulaihati (2017), Hirindu Kawshala (2017), Kassem and Sakr (2018), Mosey, Tommy, and Untu (2018), Ha (2020), Sari and Septiano (2020), and Saleh and Winarso (2021).

In the green banking concept, credit to third parties is green loan this means that the credit is given to finance the customer's business that is friendly to the environment (Hasanuddin Rahman, 2007), (Radyati, 2014), (Panjaitan, Sos, & MT, 2015), (Handajani, Rifai, & Husnan, 2019). In addition to green loans, sixteen other elements are part of the green banking index which is a proxy for green banking in this study (Shaumya &

Arulrajah, 2016) (Handajani et al., 2019). This study is different from the research previously mentioned, wherein this study will focus on the research question, does green banking affect profitability?

2. Literature review and hypothesis development

1.1. Literature Review

1.1.1. Profitability

At the end of the period the company's operating results will be assessed by the performance that has been achieved. This performance appraisal is feedback and learning for the company to be even better in the future (Wheelen, Hunger, Hoffman, & Bamford, 2017). Performance can be assessed from various aspects such as: financial, non-financial, or financial and non-financial such as the balanced scorecard concept (Kaplan, Robert, Kaplan, & Norton, 2001), (Kaplan & Norton, 2007).

Performance is how an organization can take advantage of its capabilities and existing market opportunities to achieve organizational goals (Horngren, Bhimani, Datar, & Foster, 2002). Performance is the final result of activities that have been carried out using certain measures that have been selected to assess the work results of organizational units in achieving organizational goals. (Wheelen et al., 2017). Meanwhile, according to Bikker and Bos (2008) bank performance is related to competition, concentration, efficiency, productivity and profitability.

Profitability is a measure of a company's ability to get a profit from its business activities. (Hasibuan, 2008). Furthermore, Hasibuan (2008) explains profitability as the company's ability in terms of efficiency and effectiveness of company operations in obtaining profits. The profitability of the bank shows the ability of the bank to earn a profit which is expressed as a percentage (Hasibuan, 2008). According to Appendix SEOJK N0.14 / SEOJK.03 / 2017 banking profitability can be measured using Return on Assets (ROA) and Net Interest Margin (NIM) (OJK, 2017).

Proxy of profitability in this study is ROA which is calculated using the following formula.

$$ROA = \frac{Profit}{Average\ Total\ Assets}$$

1.1.2. Green Banking

The environmental impact of a bank can be distinguished between problems caused by internal banks and caused by external banks. Internal problems are related to business processes within the bank, while external problems are related to bank products. Internally, banks are a relatively clean sector. The environmental burden of their energy, water, and paper use is not comparable to many other sectors of the economy. While externally, the environmental impact of the bank's products must be considered (Bouma, Jeucken, & Klinkers, 2017).

According to Lymperopoulos, Chaniotakis, and Soureli (2012) green banking directs banks to be more responsible for the environment by developing an inclusive bank strategy that can ensure sustainable economic development. Green banking is a bank effort to make the industry grow green and can help the process of environmental recovery (Biswas, 2011). Green banking is a banking business undertaken to help reduce overall external carbon emissions and internal carbon footprints (Bhardwaj & Malhotra, 2013). Green banking is generally known as environmentally friendly banking, ethical banking, or sustainable banking. In a broad perspective this is an environmentally friendly banking practice that promotes its clients to reduce the carbon footprint of their business (Tara, Singh, & Kumar, 2015).

This study uses the green banking index as a proxy for green banking. The Green Banking Index was developed by Shaumya and Arulrajah (2016) in (Handajani et al., 2019) by using 16 indicators of green banking reporting, consisting of 1) Environmental awareness training and education; 2) Environmental performance evaluation; 3) Environment-based reward system; 4) Saving paper usage (paperless); 5) Use of energy-saving equipment; 6) Waste/recycling management; 7) Eco-friendly bank; 8) Green loan; 9) Green project financing (green project); 10) Green enterprise facilities; 11) Environmental based credit evaluation; 12) Management of green branches; 13) green policy; 14) green partnership; 15) Environmentally based strategic planning, and 16) Green Procurement.

The index is measured by calculating the disclosure items of green banking reporting that are reported by the bank compared to the disclosure items that are expected. If the company discloses items, it will be given a score of 1 and a score of 0 otherwise (Handajani et al., 2019).

The formula used is as follows: (Ullah & Rahman, 2015), (Masud, Kaium, Bae, & Kim, 2017), dan (Handajani et al., 2019)

$$GDB = \sum_{i=1}^{n} di$$

Description:

GDP	=	Disclosure of green banking bank *i* year *t*
di	=	1 if reported, 0 otherwise
n	=	the expected number of disclosure of Green Banking indicators

1.2. Hypothesis Development

Previous research on green banking, as follows: banks must go green and play a proactive role related to environmental and ecological aspects as part of the principle of the loans they provide (Biswas, 2011). Banks that adopt green banking practices affect organizational performance (Bhardwaj & Malhotra, 2013). Importance of the steps that must be taken by the government to implement green banking policies (Islam, Hossain, Siddiqui, & Yousuf, 2014). The adoption of the green banking approach is not only an environmentally friendly bank, but it can also improve the bank's reputation (Tara et al., 2015). Green banking is an effort to change the paradigm in developing responsible Islamic banks through financing that plays a role in preventing environmental damage (Nasution, 2018).

The results of research by Bukhari, Hashim, and Amran (2019) concluded that external or institutional factors are proposed to play an important role in the application of Green Banking practices. The proposed framework can be adopted by the regulatory authorities of a country and individual banks to identify factors that can positively influence and facilitate the implementation of Green Banking. To corporate image and customer loyalty, Solekah (2019) concluded that green banking and green corporate image products have a direct effect on green customer satisfaction, but green banking products have not had a direct effect on customer satisfaction, on the other hand, the green corporate image has a direct effect on green customer loyalty.

Karyani (2020) proves that green banking practices have a negative effect on bank profitability, on the contrary, they have a positive effect on bank value. Meanwhile, according to Chasbiandani, Rizal, and Satria (2019), Anggraini, ARYANI, and Prasetyo (2020), Ningsih, Hanif, and Iqbal (2020), and Ratnasari, Surwanti, and Pribadi (2021) green banking policies affect profitability.

This research hypothesizes that green banking has a positive effect on profitability.

3. Research method

This study uses secondary data on bank annual financial reports which are included in the SRI-KEHATI Index on the Indonesia Stock Exchange (BEI) 2015-2019. The population in this study were 25 companies included in the SRI-KEHATI Index. Purposive sample criteria are: a) bank companies, and b) publish annual reports for 2015 - 2019. Then a sample of 6 banks was obtained, consisting of Bank Mandiri Tbk., Bank OCBC NISP Tbk., BCA Tbk., BNI 46 Tbk., BRI Tbk., and BTN Tbk.

Operationalization of research variables as follows:

Table 3.1.
Operationalization of variables

Variable	Indicator	Scale
ROA (Y)	$ROA = \frac{Profit}{Average\ Total\ Assets}$	Ratio
Green Banking Index (X)	$GDB = \sum_{i=1}^{n} di$	Ratio

The model in this study used linear regression using the EViews software version 10. The regression model is as follows:

$$ROA_{it} = \alpha + \beta_1 GBI_{it} + \varepsilon$$

Hypothesis test:

$H0_1$: The GBI has no positive effect on ROA

Ha_1: The GBI has a positive effect on ROA

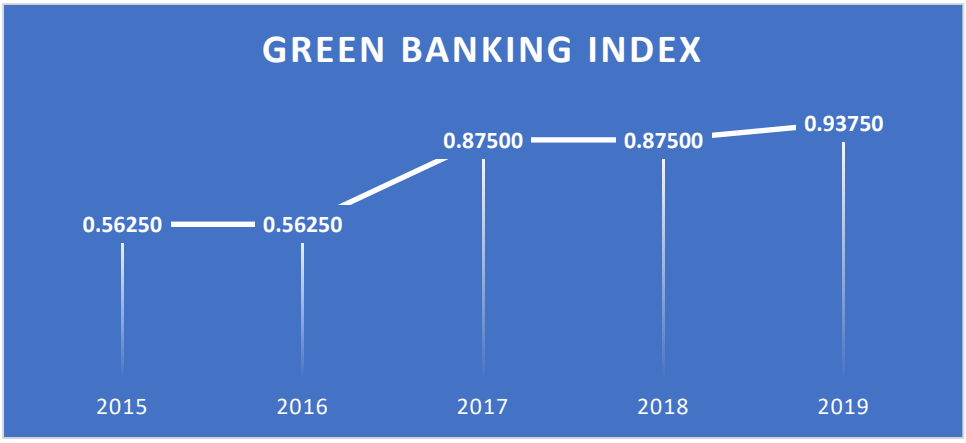
If the value of Prob (t-Statistic) < 0.05 then H0 is rejected and accepts Ha.

4. Results and discussion

1.3. Results

Graph 4.1. shows the Green Banking Index (GBI) of Bank Mandiri Tbk. which tends to increase from 2015 - 2019, although not all indicators of green banking disclosure have been fulfilled.

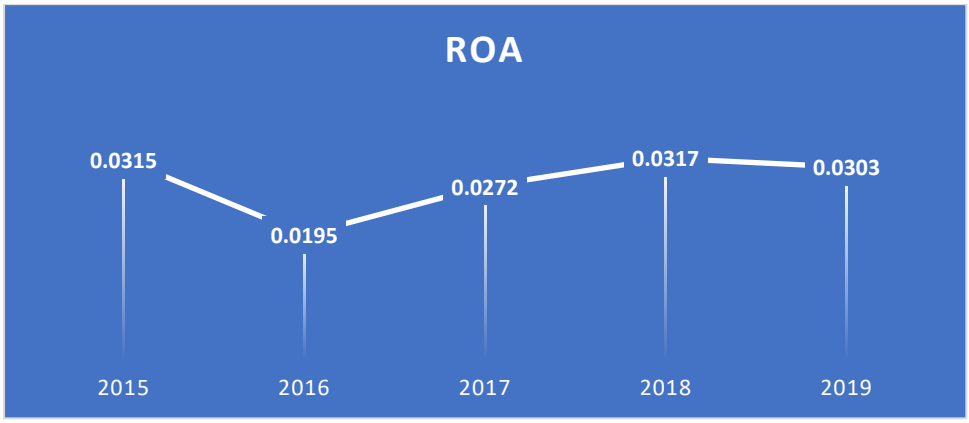
Graph 4.1. Green Banking Index (GBI) – Bank Mandiri Tbk.
2015 – 2019



Source: annual report (processed)

Graph 4.2. shows the Return on Assets (ROA) of Bank Mandiri Tbk. which fluctuated and tended to decline in the last two years during 2015 - 2019. ROA for 2015, 2017, 2018, and 2019 (3.15%; 2.72%; 3.17%; and 3.03%) were above average ROA of commercial banks in 2015, 2017, 2018, and 2019 (2.32%; 2.45%; 2.55%; and 2.47%). Meanwhile, ROA in 2016 (1.95%) was below the average ROA of commercial banks in 2016 (2.23%). However, the level of operational efficiency of the bank in using its assets to generate profits is quite good.

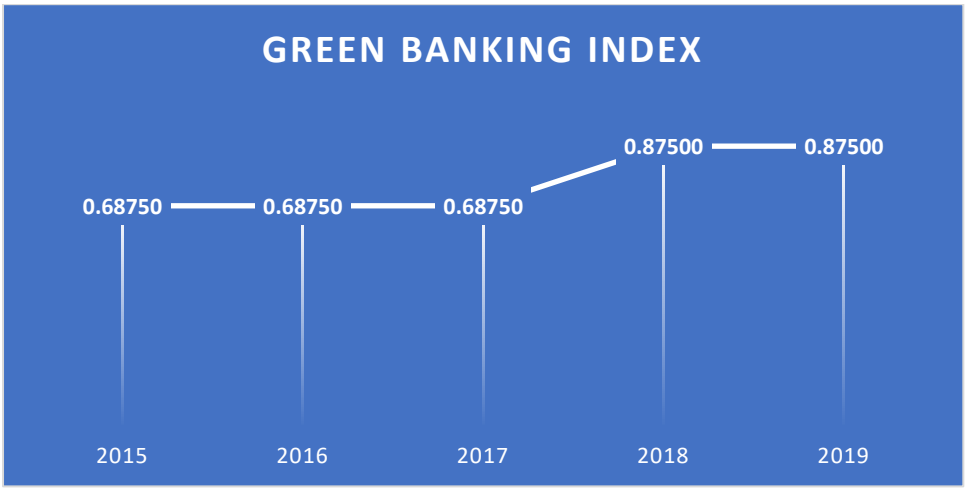
Graph 4.2. Return on Assets (ROA) – Bank Mandiri Tbk.
2015 - 2019



Source: annual report (processed)

Graph 4.3. shows the Green Banking Index (GBI) of Bank OCBC NISP Tbk. which tends to be stable in the 2015 - 2017 period and has increased in the 2018 - 2019 period, although not all indicators of green banking disclosure have been fulfilled.

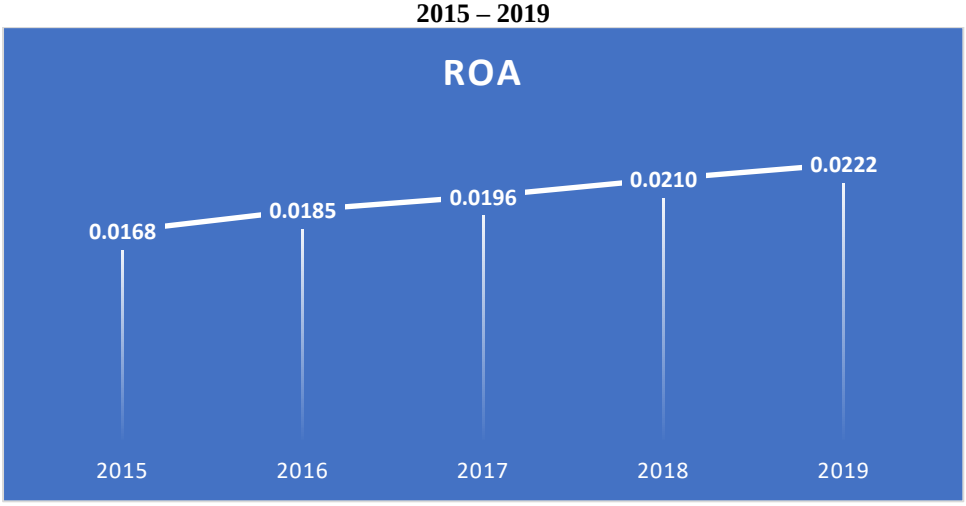
Graph 4.3. Green Banking Index (GBI) – Bank OCBC NISP Tbk.
2015 - 2019



Source: annual report (processed)

Graph 4.4. shows the Return on Assets (ROA) of Bank OCBC NISP Tbk. which continued to show an increase during 2015 - 2019. ROA for 2015 - 2019 (1.68%; 1.85%; 1.96%; 2.10%; and 2.22%) was still below the average ROA of the bank commercial 2015 - 2019 (2.32%; 2.23%; 2.45%; 2.55%; and 2.47%). Although throughout 2015 - 2019 ROA was below the average ROA of commercial banks, this shows an increase from year to year. Thus, the level of operational efficiency of the bank in using its assets to generate profits continues to improve.

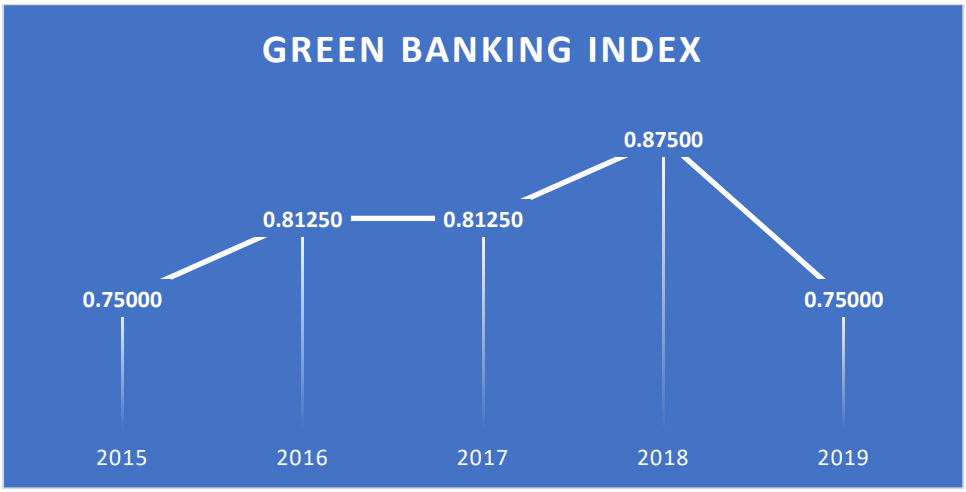
Graph 4.4. Return on Assets (ROA) – Bank OCBC NISP Tbk.
2015 – 2019



Source: annual report (processed)

Graph 4.5. shows the Green Banking Index (GBI) of BCA Tbk. which tends to increase in the 2015 - 2018 period and has decreased in 2018. This condition shows that not all indicators of green banking disclosure have been fulfilled.

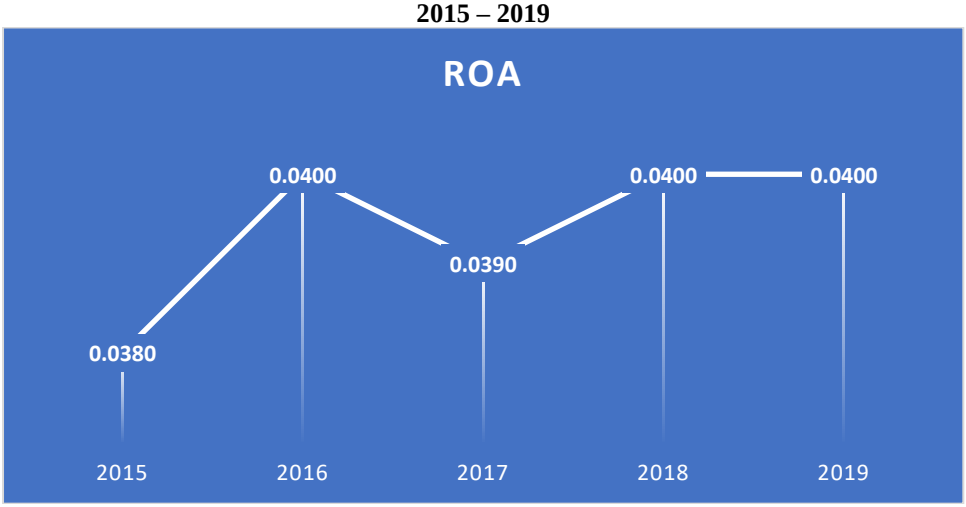
Graph 4.5. Green Banking Index (GBI) – BCA Tbk.
2015 - 2019



Source: annual report (processed)

Graph 4.6. shows the Return on Assets (ROA) of BCA Tbk. tends to fluctuate during 2015 - 2019. ROA achieved by BCA Tbk. in 2015 - 2019 (3.80%; 4.00%; 3.90%; 4.00%; and 4.00%) is higher than the average ROA of the bank commercial 2015 - 2019 (2.32%; 2.23%; 2.45%; 2.55%; and 2.47%). Although fluctuating, during 2015 - 2019 the ROA achieved was better than the average ROA of commercial banks. Thus, the level of operational efficiency of the bank in using its assets to generate profits continues to improve.

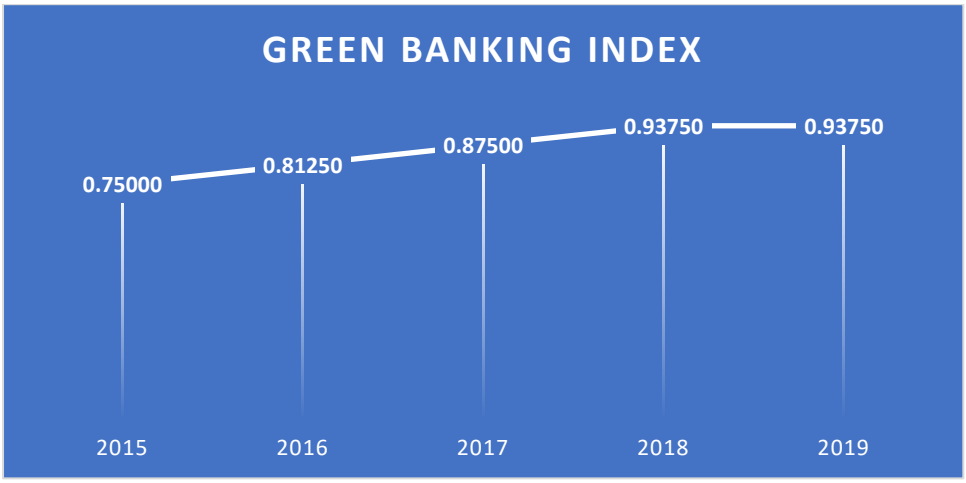
Graph 4.6. Return on Assets (ROA) – BCA Tbk.
2015 – 2019



Source: annual report (processed)

Graph 4.7. shows the Green Banking Index (GBI) of BNI 46 Tbk. which tends to increase in the 2015 - 2019 period. Although this condition shows that not all indicators of green banking disclosure have been fulfilled, it shows improvement in disclosure.

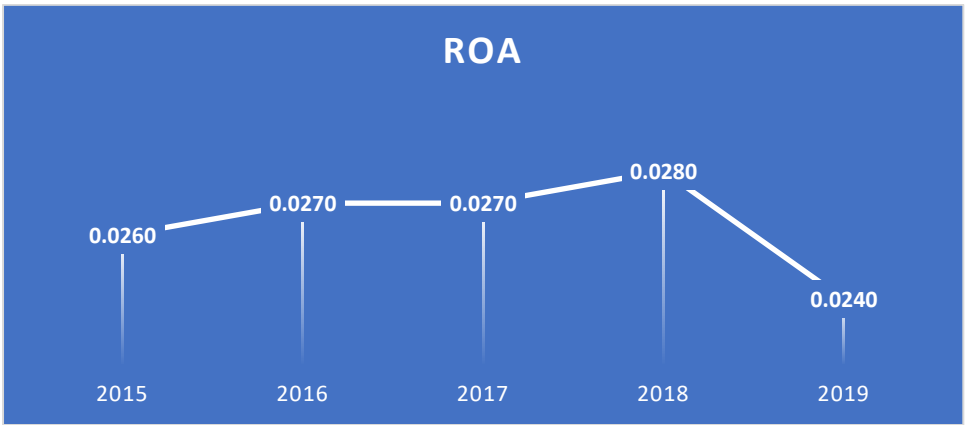
Graph 4.7. Green Banking Index (GBI) – BNI 46 Tbk.
2015 - 2019



Source: annual report (processed)

Graph 4.8. shows the Return on Assets (ROA) of BNI 46 Tbk. tends to increase during 2015 - 2018 and has decreased in 2019. ROA achieved by BNI 46 Tbk. 2015 - 2018 (2.60%; 2.70%; 2.70%; and 2.80%) were above the average ROA of commercial banks in 2015 - 2018 (2.32%; 2.23%; 2.45%; and 2.55%). Only the ROA in 2019 (2.40%) was below the average ROA of commercial banks in 2019 (2.47%). Although fluctuating, during 2015 - 2018 ROA was above the average ROA of commercial banks except for 2019 ROA was below the average ROA of commercial banks. However, the level of operational efficiency of the bank in using its assets to generate profits is in good condition.

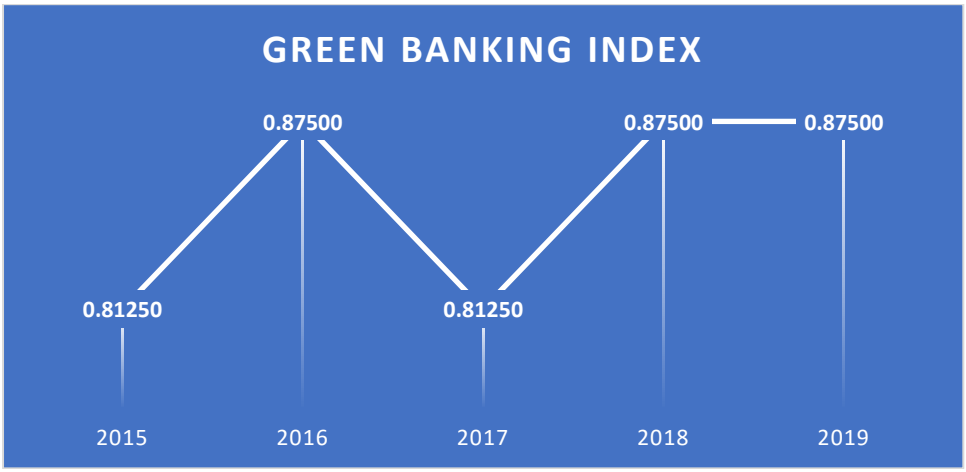
Graph 4.8. Return on Assets (ROA) – BNI 46 Tbk.
2015 – 2019



Source: annual report (processed)

Graph 4.9. shows the Green Banking Index (GBI) of BRI Tbk. which tends to fluctuate throughout the 2015 - 2019 period. Although this condition shows that not all indicators of green banking disclosure have been fulfilled, it shows improvement in disclosure.

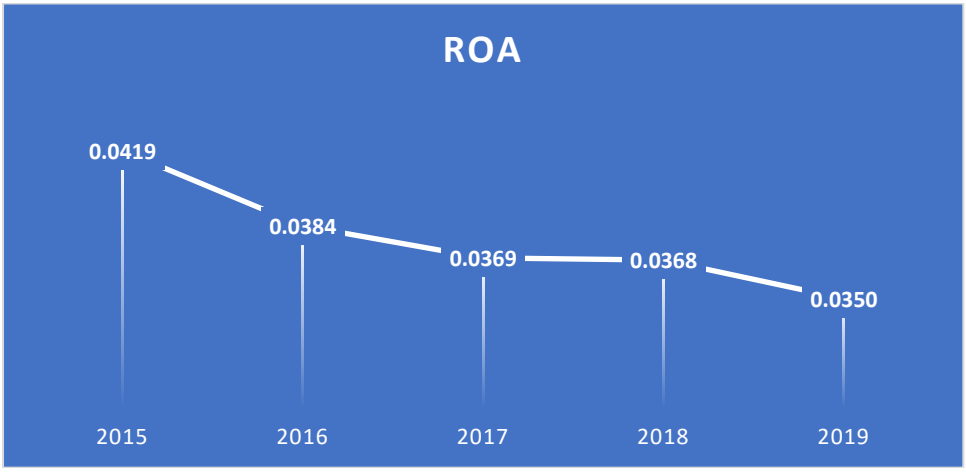
Graph 4.9.
Green Banking Index (GBI) – BRI Tbk.
2015 – 2019



Source: annual report (processed)

Graph 4.10. shows the Return on Assets (ROA) of BRI Tbk. tends to decline during 2015 - 2019. BRI Tbk. can achieve ROA in 2015 - 2019 (4.19%; 3.84%; 3.69%; 3.68%; and 3.50%) better than the average ROA of commercial banks in 2015 - 2019 (2, 32%; 2.23%; 2.45%; 2.55%; and 2.47%). Even though it showed a decline throughout 2015 - 2019, the ROA was above the average ROA for commercial banks. However, the level of operational efficiency of the bank in using its assets to generate profits has decreased.

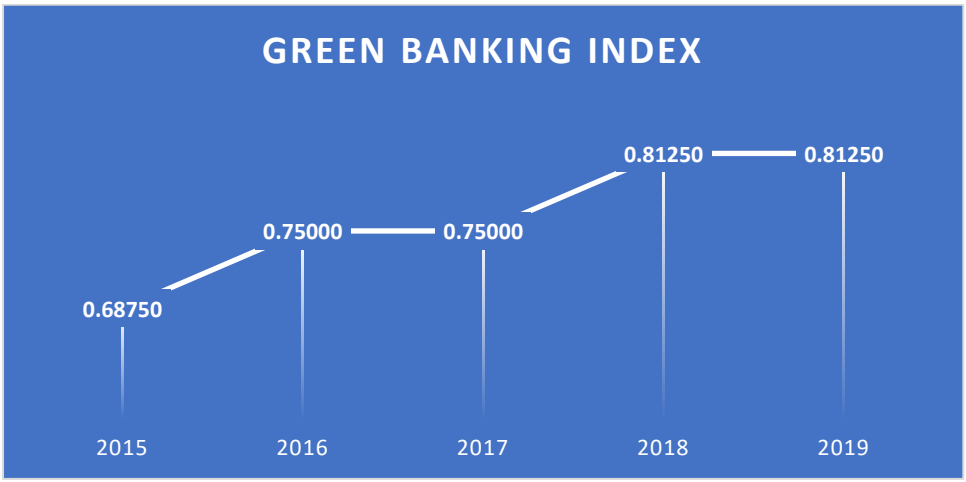
Graph 4.10. Return on Assets (ROA) – BRI Tbk.
2015 – 2019



Source: annual report (processed)

Graph 4.11. shows the Green Banking Index (GBI) of BTN Tbk. which tends to increase throughout the 2015 - 2019 period. Although this condition shows that not all indicators of green banking disclosure have been fulfilled, it shows improvement in disclosure.

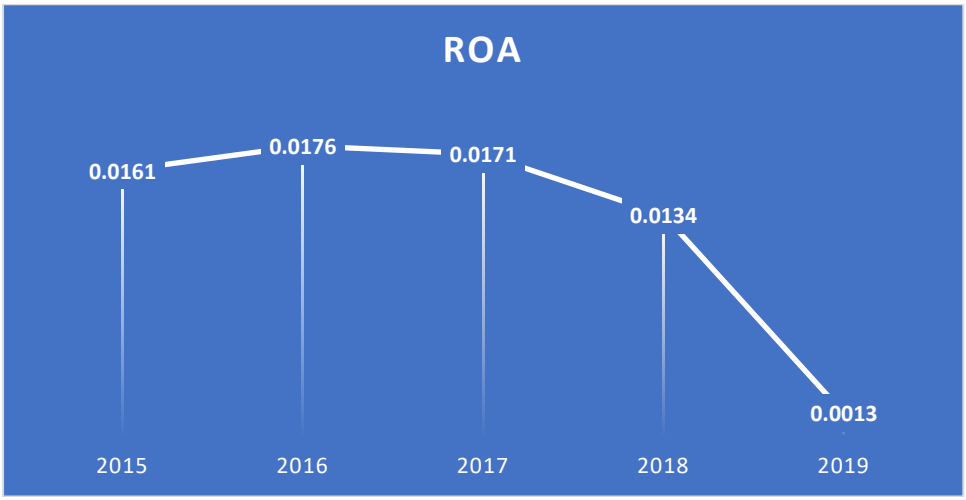
Graph 4.11. Green Banking Index (GBI) – BTN Tbk.
2015 – 2019



Source: annual report (processed)

Graph 4.12. shows BTN Tbk's Return on Assets (ROA). tended to decline during 2015 - 2019. This decline in ROA can also be seen from the ROA achieved by BTN Tbk in 2015 - 2019 (1.61%; 1.76%; 1.71%; 1.34%; and 0.13%) below the average ROA of commercial banks 2015 - 2019 (2.32%; 2.23%; 2.45%; 2.55%; and 2.47%). Especially the ROA in 2019 which is far below the average ROA of commercial banks in 2019. This condition shows that the level of operational efficiency of the bank in using its assets to generate profits has decreased.

Graph 4.12. Return on Assets (ROA) – BTN Tbk.
2015 – 2019



Source: annual report (processed)

Based on the results of statistical testing using e-views version 10, the regression equation is obtained as follows.

Table 4.1.
Regression Equations

Estimation Command:
==========
LS ROA C GBI

Estimation Equation:
==========
ROA = C(1) + C(2)*GBI

Substituted Coefficients:
==========
ROA = 0.0183431034483 + 0.0127172413793*GBI

Source: EViews output

Analysis of the coefficient of determination (R^2) measures the ability of an independent variable to explain the dependent variable Based on Table 4.2. The R-Squared value of the research model is 0.21166 or 21.12%. This means that the independent variable (GBI) can explain or influence the dependent variable (ROA) only by 21.12%, the remaining 78.88% is the influence of other variables.

Table 4.2.
Coefficient of Determination and Hypothesis Testing

Dependent Variable: ROA
Method: Panel Least Squares
Date: 03/01/21 Time: 09:06
Sample: 2015 2019
Periods included: 5
Cross-sections included: 6
Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.018343	0.003624	5.061912	0.0000
GBI	0.012717	0.004645	2.737779	0.0106

R-squared	0.211166	Mean dependent var	0.028040
Adjusted R-squared	0.182994	S.D. dependent var	0.004641
S.E. of regression	0.004195	Akaike info criterion	-8.045470
Sum squared resid	0.000493	Schwarz criterion	-7.952057
Log likelihood	122.6821	Hannan-Quinn criter.	-8.015587
F-statistic	7.495435	Durbin-Watson stat	2.673165
Prob(F-statistic)	0.010628		

Source: EViews output

Based on Table 4.2. It is known that the GBI Probability (t-statistic) value is 0.0106 <0.05 with a regression coefficient of 0.012717, it can be concluded that GBI has a positive effect on ROA.

1.4. Discussion

Green banking, which is proxied by the green banking index, affects profitability, which is proxied by ROA, indicating a positive direction. A positive relationship means that each additional value of the green banking index will have implications for increasing profitability. The higher the green banking index, the more effective the bank is in implementing green banking practices to realize a green economy, the higher the profitability (ROA) will be. The results of this study are in line with the results of this study following the research Chasbiandani et al. (2019), Anggraini et al. (2020), Ningsih et al. (2020), and Ratnasari et al. (2021)

5. Conclusions and suggestions

1.5. Conclusions

The results of statistical testing can prove that green banking (GBI) has a positive effect on bank profitability (ROA).

1.6. Suggestions

The banks observed in this study have implemented green banking practices in their operations but have not been optimal, therefore it is recommended to increase activities such as environmental performance evaluation, environmentally-based reward systems, green procurement, environmental awareness training and education, and environmental-based credit evaluation.

Suggestions for further research can be developed by adding other independent variables because of the high influence of other independent variables not studied besides the green banking index.

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