Green Banking and Performance: The Role of Foreign and Public Ownership

Etikah Karyani*1, Vangi Vinanda Obrien2
1,2Accounting department, Indonesia Banking School, Indonesia
Corresponding author: etika.karyani@ibs.ac.id
https://dx.doi.org/10.24815.jdab.v7i2.17150

1. Introduction

A continually decreasing environment quality has been substantially linked to today’s economic and business activities. The impact of economic and business activities on climate change for example, has triggered a long lasting debate both in international and national scale particularly in developed countries. On an international scale, The World Economic Forum places the economy and environment as the world’s main risks as reported in the 2013 report. These two factors are interrelated which is believed that environmental damage caused by unsustainable industrial governance has a negative impact on the global economy. Therefore, the banking industry must participate in improving the quality of the...
environment that encourages green banking activities. Green banking combines four elements of life, namely nature, well-being, economy and society to then create a life that cares about ecosystems and the quality of human life. This is expected to be a long-term business strategy that is not only profit-oriented, but also towards empowering and preserving the environment in society (Zu, 2019).

In Indonesia, Bank Indonesia BI (the central bank of Indonesia) issued BI Regulation (PBI) No. 14/15/PBI/2012 concerning Assessment of Commercial Bank Asset Quality in 2012. It captured the obligations of national banks to consider environmental feasibility factors in evaluating a business prospect and its impact on the environment. Furthermore, Otoritas Jasa Keuangan/ OJK (or financial services authority) also issued regulation number 51/POJK.03/2017 regarding the implementation of sustainable finance for financial service institutions and public companies. As one of the financial services institutions, the banking industry is required to behave ethically in order to run an environmentally friendly business, so it is considered important to conduct social and environmental risk management.

Green banking practices are also a concern of academics. The environmentally conscious banking industry shows a higher profit because the community has realized the importance of preserving the environment so that it affects their decision to invest (Weber, 2016; Rahaman et al., 2018; Ratnasari, 2018). The results also show that green loan guidelines require banks to be more active in connection with the integration of environmental risks into the bank’s credit risk assessment procedures. Environmental management can also be a tool for organizations to increase their competitiveness (Hart & Ahuja, 1995; Porter & Linde, 1995). Miles & Covin (2000) also states that environmental performance increases the reputation and goodwill of the organization and creates challenges and opportunities for business organizations (Thevanes & Arulrajah, 2016).

The concept of green banking has 2 (two) dimensions, namely lending and operating activities. Lending activities are undertaken by banks to businessmen taking into account the impact given to the environment (Ramila & Gurusamy, 2016). Although green banking regulations have been issued by both international and national institutions, in practice this has not been as satisfying as expected especially in developing countries (see Islam & Das, 2013, Handajani et al., 2019). Therefore, this study will re-analyze the effects of green banking on banking performance in Indonesia which is still very limited.

Thus, this study is expected to make several contributions. First, this study analyzes the development of green banking practices in Indonesia since 2012, the first green banking regulations were issued by BI, and investigates the impact of these practices on the bank’s performance. We use the various measures of financial performance that allow capturing the response of different stakeholders to green banking. Second, the research samples are banks participated in the green banking pilot project which was formed in 2015.

Finally, this study includes foreign ownership and listed banks as moderation variables, to the best of the researchers’ knowledge, which have not been captured much by previous researchers. While these two variables are important factors in influencing the company’s strategy and objectives. Some of these contributions are expected to fill the research gaps that are beneficial to policy makers, practitioners and researchers. Kim et al (2018) stated that practitioners should consider ownership structure in examining the relationship between Corporate Social Responsibility (CSR) and firm value. However, Kim et al (2018), for example, cannot prove this effect. On the other hand, foreign bank ownership has a positive effect on Environmental, Social, and Corporate Governance.
223

Karyani & Obrien/Jurnal Dinamika Akuntansi dan Bisnis Vol. 7(2), 2020 pp 221-236

(ESG) investment (see Nyarku & Hinson, 2018; Doš, 2018). Using a sample of government companies listed on the Europe market, Danford (2017) found that ESG decreases corporate performance.

This paper continues as follows. Section 2 presents the theoretical foundations of this research and develops hypotheses. Section 3 explains the methodology and data. Section 4 presents the results and analysis. The last part provides some conclusions and recommendations for further studies.

2. Theoretical framework and hypotheses development

Green banking and its practices in the Indonesian banking

Practically, accounting is related to activities that involved two or more individuals in an accounting dynamic interaction context with the environment; viewed from social, cultural, politic, or economic aspectes of a society (Budiasih & Sukoharsono, 2012). Green banking is the biggest initiative that can be taken by banks as an effort to save the environment in the banking industry. Green banking is believed to stop the degradation of the environment and make the environment so that it can be livable (Aubhi, 2016).

Green banking refers to the implementation, support and creation of environmentally friendly practices and carbon footprint reduction in a bank’s internal and external operations (Schultz, 2010). According to Islam & Das (2013) green banking is defined as a form of support for environmentally friendly practices involving 2 (two) approaches, namely: (1) green transformation that focuses on the internal activities of banks by adopting appropriate steps in utilizing renewable energy and other actions to minimize the amount of carbon produced by the bank; and (2) charging companies or customers responsible for the environment through weighting environmental risks before making financing decisions and supporting the
growth of environmental-based initiatives and projects in the future.

In principle, the guidelines related to green banking in Indonesia were drafted in 2012 and adopted in 2014 explicitly in Bank Indonesia Regulation (PBI) No. 14/15/PBI/2012 concerning the assessment of the quality of commercial bank assets, particularly those relating to environmental aspects. This issuance is the first step to encourage the Indonesian banking industry to put more emphasis on environmental preservation by lending more to environmentally friendly customers and limiting lending to those who are not environmentally friendly.

Based on United Nations Environment Programme (UNEP) (Lako, 2014), three (3) steps are formulated to move towards sustainable banks three (3) steps are formulated to move towards sustainable banks. First, defense banking that banks follow the regulations set by the government regarding the environment. The second stage, preventive banking related to cost savings in bank activities such as the use of paper (internal side) and reducing investment risk due to environmental risks (external side). Third, offensive banking which is a new opportunity in market share, one of which is adopting sustainable practices while still providing benefits. Some banks have implemented green banking practice, however, its development is quite slow because of the possibility of inadequate and voluntary regulation.

The basic principle of green banking is as an effort to improve the bank risk management, particularly in relation to the environment and to increase an environmental-friendly financing portfolio. For example, financing for renewable energy, energy efficiency, organic agriculture, eco-tourism, environmental-friendly transportation, and various eco-label products. Thus, it can lead the level of bank awareness towards the risk of possible environmental problems in the project it finances which may have a negative impact on a decrease in bank credit quality and reputation. Bank Danamon, for example, as a national bank has the highest
score in lending and investment policies related to social and environmental issues. In addition, eight national banks are known as the pioneers of sustainable banking adoption due to having a high commitment in running Green Banking operations, namely Bank Mandiri, BRI, BCA, BNI, Muamalat Bank, Sharia BRI, BJB and Artha Graha International Bank.

Green banking practices and bank performance

Some previous research, although still limited, investigated the effect of green banking practices on financial performance or vice versa, the results of which are still ambiguous. Chen & Metcalf (1980); Nanda & Bihari (2012), Rajput et al. (2013), for example, shows that there is no effect of green banking practices on financial performance. In contrast, Hamilton (1995) states that compliance costs by providing environmental information/reporting that must be prepared so that it has a negative effect on company profitability.

Although the implementation level of green banking has not been satisfactory, green banking as a form of social responsibility can improve the bank's reputation in the eyes of investors through a positive image (Rosdwianti & Dzulkirom AR, 2016), decrease the cost of paper consuming so that the profitability increases (Dialysa, 2015), and mitigate environmental risks (Weber, 2016). Study of Simpson & Kohers (2002); Carnevale (2014); Uwuigbe et al (2018) prove that sustainability report has a positive effect on stock performance because it is an effort to maintain a good relationship between the company and its investors so that to continue to invest in the company. Moreover, it can drive an increase in income in the long run through an increase in the customer base and a growth in human capital as well as bank revenues over time.

This study is based on the theory of socially responsible investment (SRI) that can explain the relationship between green banking practices and banking performance. According to Revelli & Viviani (2015), SRI is motivated by the need to invest ethically. This theory can also explain that the practice of green banking focuses on investing in social responsibility as a means to improve sustainability performance that is profitable for policy makers and managers (Korzeb & Samaniego-Medina, 2019). Banks that practice green banking must be socially responsible by considering the impact of the desired project or saving the environment in the short and long term before approving a loan. This is the result of stakeholder demand, including investors that gone beyond factors such as return on investment and low risk. Thus, the first hypothesis statement is: 

H1: Green banking practices have a positive effect on bank performance.

Role of ownership structure (foreign and public) on the association between green banking practices and performance

Ownership structure is one of main factors that can influence the strategic aspects of the company (Porter, 1990), including green banking practices. Company goals are determined by the ownership structure, motivation of owners and creditors, corporate governance that forms the incentives or motivations of managers. Therefore, this study uses the ownership structure variables, namely public and foreign ownership, which is used as a moderating variable.

Based on research by Perkebunan Prakara (2016), foreign banks have higher scores than national banks in terms of social and environmental involvement (green banking). Furthermore, a study conducted by Khanna & Palepu (2000) proved a significant difference in performance between foreign and domestic companies. Companies that are monitored by foreign parties/investors have better performance because they have a better level of transparency and monitoring ability. They also have higher experience related to management techniques, corporate governance mechanisms and information technology (Turner & Arun, 2004), including the application of bank sustainability
Thus, the practice of green banking has the potential to have a positive impact in the long run so that the market will react positively. Ownership structure is one of main factors that can influence the strategic aspects of the company (Porter, 1990), including green banking practices. Company goals are determined by the ownership structure, motivation of owners and creditors, corporate governance that forms the incentives or motivations of managers. Therefore, this study uses the ownership structure variables, namely public and foreign ownership, which is used as a moderating variable.

Based on studies conducted by Nyarku and Hinson (2018); Porter (1990); Kuada & Hinson (2012); Doś (2018), it is unveiled that foreign banks have higher scores than national banks in terms of social and environmental issues (green banking). Furthermore, Khanna & Palepu (2000) found a significant difference in performance between foreign and domestic companies. Companies that are monitored by foreign parties/investors have better performance because they have a better level of transparency and monitoring ability. They also have higher experience related to management techniques, corporate governance mechanisms and information technology (Turner & Arun, 2004), including the application of bank sustainability (Oh & Chang, 2011). Thus, the practice of green banking has the potential to have a positive impact in the long run so that the market will react positively.

H2a: Foreign ownership strengthens the positive effect of green banking practices on bank performance.

Banks listed on the stock exchange have incentives to disclose more transparent green banking practices as a consequence of the greater number of stakeholders. Thus, publicly owned companies is more depressed and become involved in environmental, social, and community activities (Hinson et al., 2010; Khan et al., 2012). The following hypothesis is:

H2b: Public ownership strengthens the positive effect of green banking practices on bank performance.

3. Research method

The object of this research is the banking industry listed in the green investment index from 2012 to 2018. The election period from 2012 is intended to analyze the development of practices since the issuance of BI Regulation (PBI) No. 14/15/PBI/ 2012. Furthermore, this study will be divided into two sample groups, namely samples listed on the IDX (listed) and all samples that include both listed and non-listed (all samples). Empirical models and variable definitions are explained as follows:

The model for all samples (all samples)

\[
\text{ROA}_{i,t} = \alpha_0 + \alpha_1 \text{GB}_{i,t} + \alpha_2 \text{FOREIGN}_{i,t} + \alpha_3 \text{LISTED}_{i,t} + \alpha_4 \text{GB*FOREIGN}_{i,t} + \alpha_5 \text{GB*LISTED}_{i,t} + \alpha_6 \ln \text{SIZE}_{i,t-1} + \alpha_7 \text{CAR}_{i,t} + \varepsilon_{it}
\]

The model for sample banks listed on the IDX (listed sample)

\[
\text{TOBIN}_{i,t} = \beta_0 + \beta_1 \text{GB}_{i,t} + \beta_2 \text{FOREIGN}_{i,t} + \beta_3 \text{GB*FOREIGN}_{i,t} + \beta_4 \ln \text{SIZE}_{i,t-1} + \beta_5 \text{CAR}_{i,t} + \varepsilon_{it}
\]

Where ROA, is return on assets, and TOBIN is Tobin's Q, are the dependent variable. The data were obtained from the annual report. ROA is profitability ratios that measure a company's ability to generate profits from the use of all its resources or assets, while Tobin's Q or Q ratio defines the company value as a form of value combination between tangible and intangible assets. The value of Tobin's Q is considered high if Tobin's Q> 1 indicating that the value of the company is greater than the value of the listed
company assets. The formula used is: (Total Market Value + Total Equity Value)/Total Assets.

Green banking (GB) is an independent variable that is measured using content analysis techniques from annual reports, as a technique that is in line with the disclosure literature (see Khan et al., 2012; Meng, Zeng, Xie, & Qi, 2016). GB activity includes 16 indicators as carried out in the study of Shaumya & Arulrajah (2017), namely (1) environmental awareness training and education; (2) evaluation of environmental performance; (3) environment-based reward system; (4) paperless savings; (5) use of energy-saving equipment; (6) waste management/recycling; (7) environmentally friendly banks; (8) green loans; (9) financing green projects; (10) green enterprise facilities; (11) environment-based credit evaluation; (12) green branch management; (13) environment-based policy (green policy); (14) environment-based partnership (green partnership); (15) environment-based strategic planning; and (16) green procurement.

These indicators are then measured using a dichotomous scale, a value of 1 (one) is given if there is green banking reporting indicators as mentioned above, and 0 (zero) if vice versa. The dichotomy scale is used to reduce the subjectivity of the study. Furthermore, the green banking practices of each bank are calculated using the following formula:

\[ GB = \sum_{i=1}^{n} d_i \]

This study also includes two moderation variables to examine whether listed companies and foreign ownership strengthen/weaken the effect of GB on accounting and market-based financial performance. The LISTED and FOREIGN variables are measured on a dichotomous scale.

Value 1 if the bank is listed on the IDX, and 0 if the bank is not listed on the IDX, while value 1 if the bank is owned by the majority of foreign investors (≥50%), and 0 if the other.

The next two control variables are used to control for company specific effects, namely firm size (SIZE) and capital adequacy ratio (CAR). According to OJK regulation No. 6/POJK.03/2016 that banks are categorized into 4 (four) BOOKS (commercial banks based on business activities) adjusted to their core capital. Therefore, firm size needs to be controlled so that the difference in bank capital can be minimized. While CAR is to accommodate the risk of losses faced by banks or to control the ability to manage all types of banking risk (Oliveira, Rodrigues, & Craig, 2011).

**Robustness test**

This study conducted a robustness test by replacing the independent variables (ROA and TOBIN) with return on equity (ROE) and price to book value (PBV). ROE is a profitability ratio that measures a company's ability to generate profits from a company's shareholder investment. While PBV is a comparison between market values with a book value of a stock that investors can find out directly how many times the market value of a stock is valued from its book value.

4. Results and discussion

**Descriptive statistics results**

The analysis of this study is based on bank-level data totaling 14 banks during 2012-2018 (as of December 31) with the final result of observations being 98 (firm years). The sample includes 10 banks listed on the Indonesia Stock Exchange (IDX) or around 72% and 5 banks owned by foreign companies (> 50%) or about 35%. Data related to the characteristics of each variable is shown in Table 1.
Table 1 Statistics summary of research variables

|        | Mean  | Median | Maximum | Minimum | Std. dev. | Skewness | N  |
|--------|-------|--------|---------|---------|-----------|----------|----|
| ROA    | 0.024 | 0.025  | 0.051   | -0.049  | 0.016     | -1.259   | 98 |
| TOBIN  | 0.357 | 0.328  | 0.953   | 0.140   | 0.175     | 1.261    | 71 |
| GB     | 0.498 | 0.500  | 1       | 0.125   | 0.225     | 0.165    | 98 |
| FOREIGN| 0.357 | 0.500  | 1       | 0       | 0.482     | 0.596    | 98 |
| LISTED | 0.724 | 1      | 1       | 0       | 0.449     | -1.005   | 98 |
| SIZE   | 36,100| 19,700 | 130,000 | 2,060   | 33,900    | 1,081    | 98 |
| CAR    | 0.189 | 0.183  | 0.300   | 0.114   | 0.042     | 0.571    | 98 |

Notes: ROA is return on assets, TOBIN is tobin’s Q, GB is green banking practice, FOREIGN is foreign ownership, LISTED is a bank listed on BEI, lnSIZE is the natural logarithm of total bank assets, and CAR is capital adequacy ratio.

Table 2 describes the GB index level which is grouped in 16 disclosure items, validity and reliability test results. The validity test uses a 5% significance level with r-table of 0.197 (98 observations), while the reliability test is carried out using Cronbach’s alpha with the rule if the Cronbach’s alpha value > 0.6 (Clark & Watson, 1995).

Table 2 Descriptive statistics, test of validity and reliability tests on item GB

| No Item | Category                        | Mean  | Yes | No  | Validity Test (r-count) |
|---------|---------------------------------|-------|-----|-----|-------------------------|
| 1       | Environmental awareness         | 0.316 | 31  | 67  | 0.532 Medium             |
|         | training & education            |       |     |     |                         |
| 2       | Environmental performance;      | 0.173 | 17  | 81  | 0.538 Medium             |
|         |                                  |       |     |     |                         |
| 3       | Environment-based reward system;| 0.214 | 21  | 77  | 0.442 Medium             |
|         |                                  |       |     |     |                         |
| 4       | Paperless                       | 0.694 | 68  | 30  | 0.056 Very low           |
| 5       | Energy saving                   | 0.663 | 65  | 33  | 0.548 Medium             |
| 6       | Waste management/recycling      | 0.633 | 62  | 36  | 0.543 Medium             |
| 7       | Environmental-friendly         | 0.684 | 67  | 31  | 0.655 High               |
| 8       | Green loan                      | 0.551 | 54  | 44  | 0.668 High               |
| 9       | Green project                   | 0.592 | 58  | 40  | 0.613 High               |
| 10      | Green enterprise                | 0.184 | 18  | 80  | 0.629 High               |
| 11      | Environment-based credit        | 0.296 | 29  | 69  | 0.642 High               |
|         | evaluation                      |       |     |     |                         |
| 12      | Green branch                    | 0.337 | 33  | 65  | 0.151 Very low           |
| 13      | Green policy                    | 0.980 | 96  | 2   | 0.079 Very low           |
| 14      | Green partnership               | 0.449 | 44  | 54  | 0.649 High               |
| 15      | Environment-based strategic     | 0.827 | 81  | 17  | 0.522 Medium             |
|         | planning                        |       |     |     |                         |
| 16      | Green procurement               | 0.367 | 36  | 62  | 0.680 High               |

Total Variance: 3.160
Total Variance: 12.978
Reliability (r11-cronbach’s alpha): 0.807 Very high

Notes: * Valid (r-count > r table), Not valid (r-count < r table)
Source: Results of data analysis (2019)

The results of the validity test on 16 GB scale items show that 13 items are a pretty good/valid and 3 items are not good (very low) namely item 4, 12, and 13. Furthermore, invalid items are excluded.
because these are not good enough to construct exactly. While the reliability test results show that the Cronbach’s alpha coefficient is 0.807 (> 0.6) or the reliability value of the GB index is very high. Figure 1 further explains the GB practices of 14 banks in Indonesia since the issuance of PBI No. 14/15/ PBI/2012. Although this regulation has not been mandatory (voluntary) for banks, around 30% of banks have implemented all 16 GB practice items. This practice continues to increase from year to year so that by 2018 it has reached 70% and the average practice of green banking for 7 years around 0.498 or 50% (see Table 1).

The practice of environment-based policies (green policy) or the 13th item is a practice that was mostly carried out from 2012 with an average of 98%. Whereas evaluation of environmental performance (item 2) is the lowest practiced or only around 17% (not tabulated). This second item was also only implemented in 2015 including item 1 (environmental awareness training and education).

The table also explains that all correlation coefficients between endogenous variables do not

Table 3 Variable correlation matrix

| Correlation | ROA | TOBIN | GB1 | FOREIGN | LNSIZE | CAR |
|-------------|-----|-------|-----|---------|--------|-----|
| ROA         | 1   |       |     |         |        |     |
| TOBIN       | 0.528*** | 1     |     |         |        |     |
| GB1         | 0.194 | 0.309*** | 1   |         |        |     |
| FOREIGN     | -0.1268 | -0.034 | -0.319*** | 1     |        |     |
| LNSIZE      | 0.544*** | 0.623*** | 0.159 | -0.059 | 1     |     |
| CAR         | 0.141 | 0.444*** | 0.580*** | 0.0118 | 0.203* | 1   |

Notes:
Standard errors *, **, *** indicate significance at 10%, 5% and 1% respectively
Source: Results of data analysis (2019).

Table 3 reports the correlation matrix between variables which shows that the green bond (GB) variable has a positive correlation with TOBIN.
indicate the possibility of serious problems related to multicollinearity in the estimated model.

**Regression results**

Table 4 and 5 present the differences in the results of panel data regression with the estimation of the least squares method or called Ordinary Least Square (OLS). Diagnostic tests of all model specifications are consistent and good as indicated by the value of adjusted R2 is quite high and the level of significance of F-statistical value. The results presented in this table also confirm that the GB factor plays a role in influencing the level of market-based performance (TOBIN).

Table 4 shows that the coefficient value of the GB variable is a significant negative (at the level of 1%) for all models, which means GB has a negative effect on ROA. This negative effect is greater after being moderated by the LISTED variable. Otherwise, Table 5 show that GB has a positive and significant (at the level 1%) effect on TOBIN for all model. Furthermore, there is no effect of foreign ownership (FOREIGN) on the association between GB practices and bank performance (ROA and TOBIN).

**Table 4 Regression result of GB model in Indonesian Banking (ROA as the proxy for performance)**

| Independent variables | Prediction | ROA (all sample) |
|-----------------------|------------|------------------|
| GB                    | +/-        | -0.014*** -0.020*** -0.042*** |
| FOREIGN                | +/-        | -0.006*** -0.013*** |
| LISTED                | +/-        | -0.002 -0.014** |
| GB*FOREIGN            | +          | 0.013           |
| GB*LISTED             | +          | 0.022**         |
| LnSIZE                | +          | 0.008*** 0.008*** 0.007*** |
| CAR                   | +          | 0.107*** 0.129*** 0.099*** |
| R-squared             |            | 0.666 0.733 0.692 |
| Adjusted R-squared    |            | 0.655 0.718 0.668 |
| F-statistic           |            | 62.598*** 50.492*** 28.896*** |
| N                     |            | 98 98 98 |

Notes:
Standard errors *, **, *** indicate significance at 10%, 5% and 1% respectively
Source: Results of data analysis (2019)

**Table 5 Regression result of green banking model in Indonesian Banking (Tobin’s Q as the proxy for performance)**

| Independent variables | Prediction | Tobin’s Q (listed sample) |
|-----------------------|------------|---------------------------|
| GB                    | +/-        | 0.090*** 0.101*** 0.088*** |
| FOREIGN                | +/-        | 0.022 -0.068 |
| GB*FOREIGN            | +          | 0.241           |
| LnSIZE                | +          | 0.064*** 0.064*** 0.065*** |
| CAR                   | +          | 1.011*** 0.974*** 0.860*** |
| R-squared             |            | 0.703 0.705 0.713 |
| Adjusted R-squared    |            | 0.690 0.688 0.690 |
| F-statistic           |            | 53.009*** 39.576*** 32.297*** |
| N                     |            | 71 71 71 |

Notes:
Standard errors *, **, *** indicate significance at 10%, 5% and 1% respectively
Source: Results of data analysis (2019)

This study suggests that the implementation of GB practices requires several costs for example, compliance costs so that it will reduce profitability. This finding is consistent with the study of
Hamilton (1995) that companies choosing the pollution control and environmental disclosure tend to be less profitable. In addition, because the focus of green banking is related to environmental-friendly retailers such as green cards, green car loans, green mortgages (Mitic & Rakic, 2017).

That is, banks provide credit interest rates that are low enough so that can result in disruption of bank revenue and profitability. Hamilton (1995) also states that listed companies tend to suffer greater losses because public companies have greater economic potential in the capital market than private companies. As a result, they are required to make reporting more comprehensive, while the costs incurred may be greater than the benefits.

Thus, the more information disclosed and the increase in investment related to environmental facilities does not necessarily increase the attractiveness of the company (Hackston & Milne, 1996). The increase in these facilities actually has a more negative impact on profitability. The results of this study contradict the findings of Nanda & Bihari (2012) which proves that there is no relationship between the adoption of green banking and bank profitability in India due to the lack of bank initiative in implementing green banking practices. In addition, study of Dialyso (2015) that proves the decrease of paper consuming increases the corporate profitability.

Table 5 shows that GB have a positive effect on stock performance (TOBIN) and consistent with the results shown in Table 4 that FOREIGN does not affect the association between GB and TOBIN. In accordance with SRI's theory that disclosure of financial statements and social responsibility by management is important. Stakeholders need to evaluate and know the extent to which a company carries out its role in accordance with the wishes of the stakeholders. Furthermore, this disclosure as a signal to communicate the company's future performance to investors. Consistent with the finding of Klassen & Mclaughlin (1996) that all forms of company information relating to the environment will affect the value of the company. Furthermore, investors in the stock market realize the importance of environmental pollution and will take a stand against industries that do not comply with pollution norms (Gupta, 2003; Goldar & Banga, 2007). Thus, financial institutions must help develop the right instruments to meet the needs of industry to control environmental impacts. For example, banks do not participate in financing projects that are expected to have detrimental impacts on ecosystems or environmental damage. While the impact of control variables (bank size and CAR) on all types of financial performance is positive and significant.

This imply that the greater the assets the bank have, the more benefits gained from scale economies through access to credit facilities to lend and invest in capital projects to realize profitability (Regehr & Sengupta, 2016). Large banks also have market power and access to the capital market so the greater their effect on corporate stakeholders (Velnampy, 2013). The study also suggests that the higher CAR of banks shows the ability to bear the risk of any risky productive credit/ assets so as to protect depositors and increase public confidence (Mili et al., 2017). The result of the robustness test subsequently shows consistent with the main tests as shown in Tables 6 and 7. So it can be concluded that there is stability and reliability of the main variables used.

| Independent variables | Prediction | ROE (all sample) |
|-----------------------|------------|-----------------|
| GB                    | +          | -0.114 ***      |
| GB*FOREIGN            | +          | -0.043 ***      |
| GB*LISTED             | +          | -0.075 ***      |
| FOREIGN               | -          | -0.119 ***      |
| LISTED                | -          | -0.117 ***      |
| GB*FOREIGN            | +          | 0.068           |
| GB*LISTED             | +          | 0.105 **        |

Table 6 Result of robustness test (ROE as the proxy for performance variable)
Independent variables | Prediction | ROE (all sample) |
|----------------------|------------|-----------------|
| LnSIZE               | +          | 0.029 ***       |
|                      |            | 0.044 ***       |
|                      |            | 0.041 ***       |
| CAR                  | +          | 0.005           |
|                      |            | 0.056           |
|                      |            | 0.005           |
| R-squared            |            | 0.404           |
|                      |            | 0.543           |
|                      |            | 0.531           |
| Adjusted R-squared   |            | 0.385           |
|                      |            | 0.518           |
|                      |            | 0.494           |
| F-statistic          |            | 21.283 ***      |
|                      |            | 21.855 ***      |
|                      |            | 14.558 ***      |
| N                    |            | 98              |
|                      |            | 98              |
|                      |            | 98              |

Notes:
Standard errors *, **, *** indicate significance at 10%, 5% and 1% respectively
Source: Results of data analysis (2019)

Table 7 Result of robustness test (PBV as a performance variable)

| Independent variables | Prediction | PBV (listed sample) |
|-----------------------|------------|---------------------|
| GB                    | +          | 1.017 ***           |
|                       |            | 0.757 ***           |
|                       |            | 0.719 ***           |
| FOREIGN               | -          | -0.290 ***          |
|                       |            | -0.444 *            |
| GB*FOREIGN            | +          | 0.539 ***           |
|                       |            | 0.531 ***           |
|                       |            | 0.534 ***           |
| LnSIZE                | +          | -3.313 ***          |
|                       |            | -1.107 ***          |
|                       |            | -1.577 ***          |
| CAR                   | +          | 0.704               |
|                       |            | 0.705               |
|                       |            | 0.705               |
| R-squared             |            | 0.691               |
|                       |            | 0.687               |
|                       |            | 0.683               |
| Adjusted R-squared    |            | 53.204 ***          |
|                       |            | 39.416 ***          |
|                       |            | 31.191 ***          |
| N                     |            | 71                  |
|                       |            | 71                  |
|                       |            | 71                  |

Notes:
Standard errors *, **, *** indicate significance at 10%, 5% and 1% respectively
Source: Results of data analysis (2019)

This study also conducted an endogeneity test to examine the possibility of an endogeneity problem in the regression equation. This test is carried out when one or more explanatory variables in one or more equations are explained by other variables in the same equation or in other equations. The endogeneity problems in this study is tested through simultaneous problem testing and Two Stage Least Square (TSLS) testing. Test results show that green banking practice variables affect bank performance and there is no reverse association, ie bank performance affects green banking practices (these results are not tabulated). In other words, the equation estimated using OLS is unbiased.

5. Conclusions

The study investigates the extent and manner of green banking practices in those included in the green banking pilot project and the green investment index in Indonesia during 2012-2018. The findings reveal that green banking practice has been adopted by the most bank since BI established the rules of sustainability in 2012, although it is still voluntary, and shows an increase in green banking activities every year. This practice has a negative impact on bank profitability and this effect is stronger in the listed banks. This confirms that the more pressure to disclose green banking practices, the greater the loss that must be borne by the bank. Whereas, there is a positive effect of green banking practice on bank value because it is expected to provide long-term benefits for stakeholders.

This study offers possible implications for the literature on green banking practices, especially in developing country contexts. This finding is further evidence of the important role of capital markets that can play a role in environmental management, especially in Indonesia where environmental monitoring and enforcement are weak. In other words, in this context, the emphasis is on improving environmental quality. Then the government is expected to create other incentives for them to participate in voluntary environmental programs.
There are several limitations in this study and the possibility of further study is needed. First, the current research is based on a green banking pilot project and green investment sample so that the sample size is very limited. Second, this paper refers to green banking guidelines from the Shaumya & Arulrajah, (2017). Future studies need to use other proxies such as the study of Bose et al (2017) which developed the Green Banking Disclosure Index (GBDI). Finally, the current study only uses quantitative research designs. Therefore, future research can consider collecting deeper data from respondents.

Acknowledgments

We thank Prof. Doddy Setiawan and anonymous reviewers for their helpful comments and suggestions.

References

Aubhi, R. U. H. (2016). The Evaluation of Green Banking Practices in Bangladesh. Research Journal of Finance and Accounting, 7(7), 93–125.

Bose, S., Podder, J., & Biswas, K. K. (2017). Philanthropic Giving, Market-Based Performance and Institutional Ownership: Evidence from An Emerging Economy. British Accounting Review, 49(4), 429-444.

Budiasih, I. G. A. N., & Sukoharsono, E. G. (2012). Accounting Practices and The Use of Money in The Reign of King Udayana in Bali: An Ethnoarcheological Approach. Simposium Nasional Akuntansi XV, Banjarmasin, (September), 20–23.

Carnevale, C. (2014). Sustainability Reporting and Varieties of Capitalism. Sustainable Development, 22.

Chen, K. H., & Metcalf, R. W. (1980). The Relationship Between Pollution Control Record and Financial Indicators Revisited. The Accounting Review, 55, 168–177.

Clark, L. A., & Watson, D. (1995). Constructing Validity: Basic Issues in Objective Scale Development. Psychological Assessment.

Danford, C. (2017). Impact of National Government Ownership on ESG Performance in The EU. Thesis. School of Business. https://aaltdoc.aalto.fi/bitstream.

Dialysa, F. (2015). Green Banking: One Effort To Achieve The Principle of GCG. First International Conference on Economics and Banking.

Doš, A. (2018). The Effect of Foreign Equity Ownership on Corporate Social Responsibility: Empirical Evidence from Poland. Financial Internet Quarterly, 13(3), 66-75.

Goldar, B., & Banga, R. (2007). Impact of Trade Liberalization on Foreign Direct Investment in Indian Industries. Asia-Pacific Research and Training Network on Trade (ARTNeT).

Green Banking Report. (2016). What Is Green Banking? http://greenbankreport.com/eco-friendly-banking/whatis-green-banking.

Gupta, R. K. (2003). Sustainability of Post-Green Revolution Agriculture: The Rice–Wheat Cropping Systems of the Indo-Gangetic Plains and China. ASA Special Publication.

Hackston, D., & Milne, M. (1996). Some Determinants of Social and Environmental Disclosure in New Zealand Companies. Accounting Auditing & Accountability Journal, 9, 77–108.

Hamilton, J. T. (1995). Testing For Environmental Racism: Prejudice, Profits, Political Power? Journal of Policy Analysis and Management, 14, 107–132.

Handajani, L., Rifai, A., & Husnan, L. H. (2019). Kajian Tentang Inisiasi Praktik Green Banking Pada Bank BUMN. Jurnal Economia, 15(1), 1–16.

Hart, S. L., & Ahuja, G. (1995). Does It Pay To Be Green? An Empirical Examination Of The Relationship Between Emission Reduction And Firm Performance. Business Strategy and the Environment, 5(1), 30–37.

Hinson, R., Boateng, R., & Madichie, N. (2010). Corporate Social Responsibility Activity Reportage on Bank Websites in Ghana. The International Journal of Bank Marketing, 28, 498–518.

Islam, S., & Das, P. C. (2013). Green Banking Practices in Bangladesh. IOSR Journal of Business and Management, 8(3), 39–44. https://doi.org/10.9790/487x-0833944

Khanna, T., & Palepu, K. (2000). The Right Way to Restructure Conglomerates in Emerging
Markets. *Business Research for Business Leaders.*

Khan, A., Muttakin, M. B., & Siddiqui, J. (2012). Corporate Governance and Corporate Social Responsibility Disclosures: Evidence from An Emerging economy. *Journal of Business Ethics, 114*(2), 207–223

Kim, W. S. Park, K. & Lee, S. H. (2018). Corporate Social Responsibility, Ownership Structure, and Firm Value: Evidence from Korea. *Sustainability, 10,* 1-20.

Klassen, R. D., & Mclaughlin, C. (1996). The Impact of Environmental Management on Firm Performance. *Management Science, 42.*

Korzeb, Z. & Samaniego-Medina, R. (2019). Sustainability Performance: A Comparative Analysis in the Polish Banking Sector. *Sustainability, 11,* 653. doi:10.3390/su11030653

Kuada, J. & Hinson, R. (2012). Corporate Social Responsibility (CSR) Practices of Foreign and Local Companies in Ghana. *Thunderbird International Business Review, 54:521‑536.* https://doi.org/10.1002/tie.21481

Lako, A. L. (2014). Green economy, Jakarta, Erlangga

Meng, X. H., Zeng, S. X., Xie, X. M., & Qi, G. Y. (2016). The Impact of Product Market Competition on Corporate Environmental Responsibility. *Asia Pacific Journal of Management, 33*(1): 267–291.

Miles, M. P., & Covin, J. . (2000). Environmental Marketing: A Source of Reputational, Competitive, and Financial Advantage. *Journal of Business Ethics, 23,* 299–311.

Mili, M., Sahut, J. M., Trimeche, H., & Teulon, F. (2017). Determinants of The Capital Adequacy Ratio of Foreign Banks’ Subsidiaries: The Role of Interbank Market and Regulation. *Research in International Business and Finance, 42,* 442–453. https://doi.org/10.1016/j.ribaf.2016.02.002

Mitic, P., & Rakic, S. (2017). Social Finance and Social Banking - A Path Towards a More Sustainable Future. *The International Institute for Development Studies, 108–119.*

Nanda, S., & Bihari, S. C. (2012). Profitability in Banks of India: An Impact Study of Implementation of Green Banking. *International Journal of Green Economics, 6*(3), 217–225. https://doi.org/10.1504/IJGE.2012.050969

Nyarku, K. M. & Hinson, R. E. (2018). Corporate Social Responsibility Reporting of Banks Operating in Ghana. *African Journal of Business Ethics, 11*(2), 19-36.

Oh, W. Y., Chang, Y. K., & Martynov, A. (2011). The effect of Ownership Structure on Corporate Social Responsibility: Empirical Evidence from Korea. *Journal of Business Ethics, 104,* 283–297. https://doi.org/10.1007/s10551-011-0912-z

Oliveira, J., Rodrigues, L. L., & Craig, R. (2011). Technical Note: Company Risk-related Disclosures in a Code Law Country: A Synopsis. *Australasian Accounting Business and Finance Journal and Authors, 7.*

Peraturan Bank Indonesia (PBI). (2012). PBI Nomor 14/15 /PBI/2012: Penilaian Kualitas Aset Bank Umum. https://www.bi.go.id/id/peraturan/perbankan.

Peraturan Otoritas Jasa Keuangan (POJK). (2017). POJK Nomor 51/POJK.03/2017: Penerapan Keuangan Berkelanjutan bagi Lembaga Jasa Keuangan, Emiten, dan Perusahaan Publik. https://ojk.go.id/id/kanal/perbankan/regulasi/peraturan-ojk.

Porter, M.E. (1990). The Competitive Advantage of Nations. New York: Free Press, MacMillan.

Porter, M. E., & Linde, C. van der. (1995). Toward a New Conception of the Environment-Competitiveness Relationship. *The Journal of Economic Perspectives, 9,* 97–118.

Rahaman, M. M., Hoque, M. S., & Roy, M. (2018). Green Financing and Its Impact on Profitability of the Banks: An Empirical Study on Banking Sector of Bangladesh. *Metropolitan Univesity Journal, 6.*

Rajput, N., Arora, M. S., & Khanna, M. A. (2013). An Empirical Study of Impact of Environmental Performance on Financial Performance in Indian Banking Sector. *International Journal of Business and Management Invention, 2*(9), 19–24.

Ramila, M., & Gurusamy, S. (2016). Impact of Green Banking Initiatives Adopted by Foreign Banks on Profitability. *The Journal of Indian Management & Strategy, 21.*
Ratnasari, T. (2018). Model Integrasi untuk Mengukur Dampak dari Green Banking dan Kinerja Keuangan terhadap Profitabilitas Bank, 1–15.

Regehr, K. & Sengupta, R. (2016). Has the Relationship between Bank Size and Profitability Changed? Economic Review, Federal Reserve Bank of Kansas City, issue Q II, 49-72.

Responsi Bank Indonesia. (2014). Mengawal Green Banking Indonesia dalam Kerangka Pembangunan Berkelanjutan. Perkumpulan Prakarsa.

Revelli, C. & Viviani, J.L. (2015). Financial Performance of Socially Responsible Investing (SRI): What Have We Learned? A Meta-Analysis. Business Ethics Europe Review, 24, 158–185.

Rosdwianti, M. K., & Dzulkirom AR, M. (2016). Pengaruh Corporate Social Responsibility (CSR) Terhadap Profitabilitas Perusahaan. Jurnal Administrasi Bisnis S1 Universitas Brawijaya, 38(2), 16–22.

Shaumya, & Arulrajah, A. (2017). The Impact of Green Banking Practices on Bank’s Environmental Performance: Evidence from Sri Lanka. Journal of Finance and Bank Management, 5(1), 77–90. https://doi.org/10.15640/jfbm.v5n1a7

Simpson, W. G., & Kohers, T. (2002). The Link Between Corporate Social and Financial Performance: Evidence from the Banking Industry. Journal of Business Ethics, 35, 97–109.

Schultz C. (2010). What is the Meaning of Green Banking? Green Bank Report, 2, 127–131.

Thevanes, & Arulrajah, A. (2016). The Relationships Among Environmental Training, Environmental Attitude of Employee and Environmental Orientation of Organization. Proceedings of 3rd Jaffna University International Research Conference (JUICE), 61–67.

Turner, J. D., & Arun, T. G. (2004). Corporate Governance of Banks in Developing Economies: Concepts and Issues. Corporate Governance An International Review, 12, 371–377.

Uwuigbe, U., Uwuigbe, O. R., Teddy, O., & Emmanuel, O. (2018). Sustainability Reporting and Firm Performance: A bi-Directional Approach. Academy of Strategic Management Journal, 17, 1–16.

Velnampy. (2013). Corporate Governance and Firm Performance: A Study of Sri Lankan Manufacturing Companies. Journal of Economics and Sustainable Development, 4(3), 228–236.

Weber, O. (2016). the Impact of Green Banking Guidelines on the Sustainability Performance of Banks. Cigi, (79), 8.

Zu, Liangrong. (2019). Purpose-Driven Leadership for Sustainable Business: From the Perspective of Taoism. International Journal of Corporate Social Responsibility, 4(1). 1-31.