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DOES COMMERCIAL BANK PRACTICE GREEN FINANCE? A STUDY ON THE RELATIONSHIP BETWEEN GREEN FINANCING AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN BANGLADESH

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ABSTRACT
Literature Review: Green finance (GF) has drawn a lot of attention in recent literature as a result of increased worldwide efforts to mitigate climate change. The Bangladeshi central bank mandates that all commercial banks embrace green banking policy guidelines and make green investments.
Purposes: In order to determine if the adoption of green finance has an effect on financial performance, this study examines the relationship between green financing and the financial performance of commercial banks in Bangladesh.
Methodology: To accomplish the goals, information has been gathered from ten commercial banks' websites, Bangladeshi banks, and annual reports of certain institutions for the years 2016 to 2022. To achieve the goals, the collected data is categorized and organized.
Analysis: Regression, correlation, and profitability ratios are used in data analysis. Ratio analysis is often used to assess and contrast different banks' long-term results. Return on equity and return on total assets are the metrics used to quantify profitability. Total debt divided by total assets is known as the debt ratio. The green financing has been utilized as an independent variable in regression analysis. The writers have employed debt ratio, return on equity, and return on asset as the dependent variable of financial success.
Findings: According to this study, green financing has a negative effect on the debt ratio but a favorable influence on the return on equity and return on total assets. Regression research reveals that there is no statistically significant correlation between Bangladeshi commercial banks' financial performance and green financing. Nonetheless, there is still a high positive link between ROE and ROA, a strong negative correlation between ROA and debt ratio, and a mild negative correlation between ROE and debt ratio. Furthermore, there is little relationship between green finance and debt ratio, ROE, and ROA. It suggests that Bangladeshi commercial banks' returns will rise in tandem with an increase in green finance.

Implications: The highly lucrative listed banks will be encouraged by the study's findings to increase their investments in environmentally friendly operations, which will eventually result in sustainable development in this industry.
Originality: This research article has not been submitted to any other papers or other institutions. It is the writers' original work.

1.1. Introduction

These days, becoming green is imperative. In recent years, the majority of countries—particularly those in the developing world—have placed a higher priority on economic growth than ecological advancement. Consequently, a number of environmental problems have come to light, such as deforestation, air pollution, climate change, biodiversity loss, land loss, and environmental degradation (Önder, 2021). Interest in green finance has lately increased due to the worldwide agreement on environmental protection, the fight against climate change, and the UN's support of the SDGs by 2030 (Ahmed, 2024). Securing green finance is crucial to guiding the economy in the direction of sustainability. Banks provide green funding, which improves a nation's economic and environmental performance. Green finance is growing in importance on a global scale, particularly in poor nations like Bangladesh (Rahman S. M., 2022). According to economists' theories, there is a positive correlation between green financing and financial performance (Abuatwan N. 2., 2023) (Chowdhury M. M.-2., 2023) (Chowdhury T. D., 2013).
Bangladesh, a country with the fourth-highest population in the world, is deeply committed to conserving the environment and is worried about its protection. The necessity to guarantee sustainable banking practices in the banking setting is appropriately reflected in the extensive policy guidelines for green banking published by the Bangladesh Bank. In reaction to environmental issues and the growing trend of finance towards green investments, many businesses in the industrialized world have included environmental protection into their plans and offer eco-friendly products and services to their clientele (Rahman M. H., 2023).
Bangladesh's banking industry is made up of international commercial banks, state-owned commercial banks, and specialist private banks. Bangladesh has forty-three private commercial banks, nine foreign commercial banks, three specialized banks, and six state-owned commercial banks. Most banks have shown that they are willing to adopt green financing practices by quickly creating internal green policy guidelines and green units. Particular attention is paid to private commercial banks in this study. Studies show that green finance gives banks a competitive edge and enhances their environmental performance, making them more competitive (Zhang X. W., 2022).

Bangladesh Bank introduced green banking policy policies for banks in 2011. In the context of Bangladesh, the role played by commercial banks in promoting green financing initiatives assumes particular significance (Hoshen, 2017). Since banks' main objective is to turn a profit, this study attempts to explore the relationship between green financing and financial success, despite their diverse operating goals. This ought to motivate bankers to implement green policies with greater consideration.

1.2. Background of the study

Businesses can obtain the necessary financial resources with the assistance of the finance industry (Ji, 2021). It also presents financial prospects for investors. Green financing lowers credit risk since sustainable company models have fewer volatile earnings (Umar, 2021). The financial industry has always placed a high priority on economic performance and paid little attention to social or environmental effects. Bangladesh's economy depends heavily on commercial banks since they serve as important financial intermediaries that encourage investment, expansion, and development. Understanding the relationship between green financing and the financial performance of Bangladesh's commercial banks is essential.

Even though green finance is becoming more and more popular worldwide, empirical study is still needed to fully understand the unique dynamics and results in Bangladesh. By analyzing the connection between green financing and the financial performance of Bangladeshi commercial banks, this study aims to close this gap.

1.3. Objectives of the Study:

Board Objective: Main focus of this study is:

- To identify the relationship between green finance and financial performance.

Specific Objectives: To achieve board objective the authors set two specific objectives also. These are:

- To investigate the impact of green financing on banks' financial performance
- To examine the correlation between green finance and banks performance (ROD ROE and DR)

1.4. Scope of the Study

Throughout the years 2016–2022, relevant data will be gathered, and trends in green financing and financial performance will be identified. Key performance measures like debt ratio, return on equity (ROE), return on assets (ROA), and green finance are the main emphasis of the examination. The study attempts to offer a targeted and perceptive analysis of the connection between green finance and financial performance on Bangladeshi commercial banks by focusing on these factors.

1.5. Limitations of the Study

Green financing is a new idea for Bangladesh, so the field is still in its early stages of development. As a result, not much research has been done on this subject. Furthermore, the set of available data is limited due to limited reporting, which causes the data related to green performance indicators to vary over the years of implementation. To examine the regulations' long-term effects, more data is required. Bangladesh has thirty-three commercial banks but here are used only ten commercial banks over the period 2016 to 2022. And here we focus only three indicators ROA, ROE and DR. These were the main limitation of this study.

2. Literature review

The proposed study is the first to look at the connection between the financial performance of Bangladeshi commercial banks' green initiatives and their offerings. Though few studies have looked at the impact of green finance in Bangladesh, many have linked it to banks' profitability in other nations. The majority of studies discovered a connection between company success and green finance.

While some studies found no correlation between business success and green finance, others discovered different outcomes for particular performance measure variables.

A Dhaka Stock Exchange study examines how green banking disclosures impact 30 listed banks' financial performance. Green banking disclosures led it to choose 70 effective 2014–2017 time-series samples. Multivariate research examined green banking disclosures and expenditure proxy components. Our independent financial performance metrics are profitability, liquidity, and solvency. LR, DAR, and ROA were proxy variables simultaneously. ROA boosts green banking disclosures. Other financial performance indicators, LR and DAR, do not considerably effect green banking spending. (Md. Kazimul Hoque, 2022).

The impact of green finance on bank performance is examined using surveys and linear regression from 2014 to 2021. Green financing increases return on equity, net interest margin, and the ratio of net non-performing loans to total loans significantly, but only somewhat (at 10% significance). (Chowdhury M. M., 2023)

Green banking and Bangladeshi commercial banks' profitability are studied. Bangladesh bank, 33 commercial banks' 2012–2019 annual reports, and websites were used. Data analysis uses profitability ratios, correlation, and regression. Asset and equity returns assess profitability. Return on total assets is the dependent variable in regression analysis, with green finance (green banking) serving as the independent variable. Green financing increases earnings, study finds. Regression shows green funding boosts earnings. Green finance boosts Bangladeshi commercial banks' earnings. (Al Mamun M. A., 2020)

The application of the green banking policy guideline and its impact on the financial performance (ROA, ROE, and ROI) of Bangladeshi commercial banks were assessed by Akhter et al. Based on an analysis of their 2016-2018 annual reports, almost 90% of commercial banks listed on the Dhaka Stock Exchange have implemented at least 60% of the green banking policy recommendations made by the central bank. The adoption rate of these initiatives by banks is less than 70%. Studies of correlation and regression demonstrate that financial success is enhanced by green banking. (Akhter I. Y., 2021)

Bangladesh's green finance situation, with an emphasis on renewable energy, was examined using descriptive statistical methods based on secondary data. The most important policy problems, according to the survey, are mainstreaming green finance, building a well-coordinated policy monitoring body, strengthening banks and other financial institutions, and expanding the bond and stock markets. Bangladesh needs to encourage green finance in order to attain sustainable growth. (Hossain, 2018)

The study found that Bangladeshi banks can implement long-term practices while following Bank of Bangladesh rules. Experience working on research projects in industrialized nations was recommended to improve green banking processes in the survey's conclusion. (Zhixia C. H., 2018)

It explained the Bank of Bangladesh's green banking strategy's methodology, prospects, challenges, and rewards. The government must lead green banking to safeguard the environment, like any bank. Central banks supervise commercial banks independently of green banking. In the current national and global financial competition, every bank should practice green banking. (Rahman F. &., 2016)

Another study used secondary data from articles and research papers to investigate India's financial markets' green products and services, their problems, and green investment. Bank websites, annual reports, etc. The researcher found that India has enormous potential to construct green infrastructure for green funding if hurdles are removed and corporate citizens' awareness is raised. (Goel, 2016).

Julia analyzed profitability and green financing using ROE, ROA, AU, and ROD from 30 Bangladeshi banks from 2012 to 2014. The study showed substantial correlations between Bangladeshi public, Islamic, conventional, and international commercial banks' returns. Green bank funding increases ROA, ROD, and AU but not ROE (Julia, 2016).

The sustainable development tenets of Green Banking were examined in another study. New issues emerged from this study, such as green banking, which supports Islamic banks' adoption of sustainable development and green banking by assisting Islamic institutions in growing responsibly. (Khan S. S., 2016)

Research has also been done on how Chinese banks' sustainability performance is affected by green bank requirements. The study discovered that regulations pertaining to the sustainability of the financial industry, such as the green credit policy, are pushing Chinese banks to include social and environmental concerns into their business plans and offerings. (Weber, 2016)

Indian consumers of all ages are adopting green banking products like youth use green bank products more than middle- and older-aged persons. Objectives are analyzed using ANOVA and post hoc studies. The survey found that different age groups use green bank products differently. (Sahoo, 2016)

Green banking is now a movement and an application. According to studies, authorities should be notified about green bank developments and activities. (Lalon, 2015)

Bangladesh's green economy transition challenges and the impact of green banking were assessed in a different study. The study discovered that while numerous legislative initiatives support green banking, the primary obstacles include insufficient environmental law enforcement, proper policies for all parties, banks' lack of readiness, defects in the market, and consumers who lack knowledge. To accomplish Bangladesh's green economy, banks, the government, consumers, pressure groups, and the Bank of Bangladesh must work together. (Ullah, 2014)

A study investigated "green" finance fundamentals and Bangladesh's green financing status.. This paper discusses greening the financial system, how financial governance will solve the electricity crisis, and how renewable energy will help. (Farzana Rashid A. U., 2023)

A comprehensive study examined financial development's long-term environmental impacts. This study showed four environmental degradation measures hurt financial development, and FDI and institutional quality worsened it. (Ayesha Afzal E. R., 2022)

Sustainable finance is valued by scholars, politicians, and funders. This study examines Bangladesh's central bank greened its financial system through laws and regulations, this study revealed Bangladesh's banks and NBFIs' 2021 shows that banks and NBFIs achieved 3.16% of 5% loan disbursement and 9.32% of 20% sustainable finance, considerably below the 2030 SDGs. (Azad, Islam, Sobhani, Hassan, & Masukujjaman, 2022)

The study studied how bank and nonbank green finance boosts Bangladesh's economy. This study discusses banks' and FIs' green financing challenges and prospects. This research helps policymakers and banks evaluate green finance laws and promote sustainable environmental and economic greening. (Rashid, 2018)

India can now develop to reduce environmental degradation, giving its finance industry several chances. Their research investigates green finance and its viability that priorities social justice, human well-being, and environmental protection. (Soundarrajan P. &., 2016)

Government actions were insignificant, which explained the study's changing green economic growth indicator. (Zhang D. M.-H., 2021)

Palestinian scholars explored "green finance" and bank viability. Green financing's social, economic,

and environmental consequences on sustainability are examined here. This paper discusses green finance and emerging countries financial institutions' sustainability. (Abuatwan N. h., 2023)

A paper by Zakari et al. examines a feasible generalized least squares model and panel-corrected standard errors show that green finance promotes environmental sustainability. (Zakari A. &., 2022)

This page discusses Bangladesh's renewable energy finance. Poor technology, institutional and regulatory framework, regulations, and incentives have hurt renewable energy. Despite the Bangladesh Bank's green banking guidelines, poor stock and bond markets, banks' incompetence, and a lack of information about green project risks and rewards are hindering green project growth. (Hossain M. 2.-f.-b.-p.-i.-c., 2018)

Green money-conservation conflicts and provides DIY environmental balancing solutions. (Wang, 2016)

3. Methodology

The research approach used in the study is described in this chapter. The purpose of this chapter is to present the research design, data collection, analysis, model, and test of significance.

3.1. Research design

First, a ratio analysis design was employed as part of this study. Ratio analysis facilitates the comparison and evaluation of these institutions' performance over time and aids in the understanding of the correlations between various financial factors. Second, the study's descriptive statistics were applied. Thirdly, the relationship between the independent and dependent variables was demonstrated using the correlation approach. Lastly, regression analysis is employed to examine the relationship between financial performance and green financing.

Table 1: List of Variables

Variable	**Symbol**	**Proxies**
Return on Asset (Dependent variable)	ROA(Y2)	Efficiency of utilizing assets to generate revenues **[ROA=Net Income/Total Assets]**
Return on Equity (Dependent variable)	ROE(Y1)	How effectively investor's money is being employed. **[ROE=Net Income/Total Equity]**
Debt ratio (Dependent variable)	DR(Y3)	It's something that the banks are really curious in. Good debt-to-income ratios go below 30%. More than 40% is crucial. You might not get a loan from a lender. **Debt ratio= Total Debt/Total Assets**
Green Finance (Dependent variable)	GF (X1)	It measures the total green finance (Direct and Indirect) that ensure a better environmental outcome.

3.2. Data collection

Data on the financial performance and green banking practices of Bangladesh's commercial banks were gathered for this study between 2016 and 2022. The following sources provided the data:

- Bangladesh Bank's annual reports.
- Bangladesh Bank's Sustainable Finance Department.
- Annual reports from sample banks' private commercial banks

3.3. Data Analysis

Using the Statistical Package for Social Sciences (SPSS) version 25, the authors have performed regression and correlation analysis to look into the association between financial success and green financing. Bank performance is measured using independent variables such as Debt Ratio (DR), Return on Equity (ROE), and Return on Asset (ROA). The study came up with a few theories to investigate the relationship between green finance and banks' financial performance.

3.4. Hypotheses Development

- **Broad Hypothesis:**

Ho: There is no significant relationship between green finance and financial performance of banks.
Ha: There is significant relationship between green finance and financial performance of banks

- **Specific Hypothesis:**

Following specific hypotheses (null and alternate) can be derived from the above stated broad hypothesis:
H1o: Green finance has no significant impact on ROA
H1a: Green finance has a significant impact on ROA
H2o: Green finance has no significant impact on ROE
H2a: Green finance has a significant impact on ROE
H3o: Green finance has no significant impact on Return on Debt
H3a: Green finance has a significant impact on return on Debt.

3.5. Data Analysis Model

The study looks into the connection between Bangladeshi commercial banks' financial performance and green funding. Key indicators are measured using ROE and ROA. Regression analysis was utilized by Chen & Ma (2021), Mamun & Rana (2020), Hossain & Kalince (2014), Rahman et al. (2018), Mengyao (2018), Zhang (2018), and Awino (2014) to demonstrate how green finance affects business performance. We use the following equation in this study:

$$\mathbf{Y= \beta_0+ \beta_1 X1+ \beta_2 X2+ \varepsilon}$$

$$ROA = \beta_0 + \beta_1 (GF) + \varepsilon$$

$$ROE = \beta_0 + \beta_1 (GF) + \varepsilon$$

$$\text{Debt Ratio} = \beta_0 + \beta_1 (GF) + \varepsilon$$

Here, Y1=ROA (Return on Asset)
Y2 =ROE (Return on Equity)
Y3 =DR (Debt Ratio)
X =GF (Green Finance)
β0 = constant term
ε = error term
β1 = coefficients of GF

3.6. Test of Significance

A test of significance was conducted to determine the strength of the link once it had been proven that there was a relationship between the dependent and independent variables. This was accomplished by computing R, or the correlation coefficient, which essentially expresses the direction and intensity of

the coefficient. The correlation coefficient can be used to determine if the variables have a positive, negative, or no relationship at all. The coefficient of determination, or R2, shows how well data fits a line or curve in a statistical model. The abbreviation ANOVA stands for analysis of variance, which compares and contrasts groups and the processes that go along with them.

4. Analysis and Hypothesis testing

4.1 Ratio Analysis

Return on Equity (ROE): This metric illustrates the connection between an organization's earnings and the return to investors and serves as a gauge of its financial performance. The return on equity (ROE) metric serves as a gauge of a company's profitability based on the capital that shareholders have contributed, as well as the ability of the management team to convert capital into profits and growth that benefit both the company and its investors. The more effectively the business uses those money, the better its return on equity (ROE).

Graphical Presentation

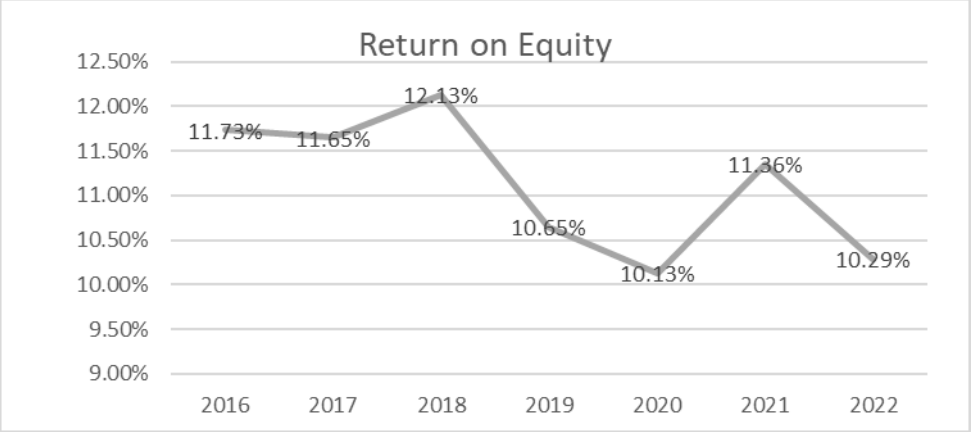

Figure 4.1: Return on Equity

Interpretation: This figure displays the average Return on Equity ratio for private commercial banks from 2016 to 2022. The ratio in 2018 is 12.43%, greater than it has ever been. The ratio in 2020 is 10.13%, which is less than in any previous year. Low return on equity (ROE) is a sign that private commercial banks are losing money on the investments made by their shareholders over time, which is bad for banks.

Return on Asset (ROA): Divide net income by total assets (typically at average value) to get the return on assets. The indicator calculates the return as a percentage of an asset's monetary value. The profitability of the bank is better the higher the ROA.

Graphical Presentation

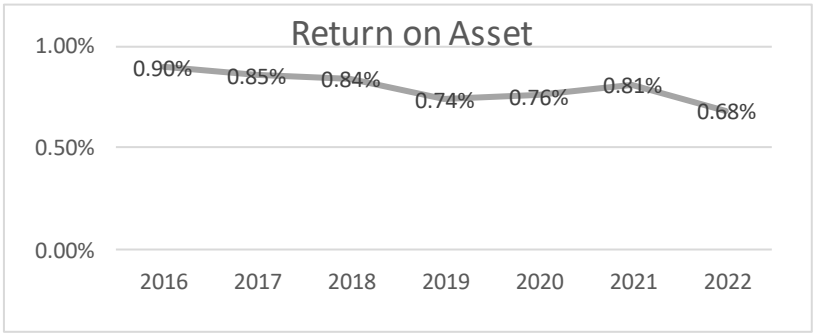

Figure 4.2: Return on Asset

Interpretation: The average return on asset ratio is shown to be fluctuating in this figure. It dropped sharply between 2016 and 2019, reaching just 0.74%, before gradually rising in 2020 and 2021. In 2022, it will collapse once more. The primary factor contributing to this declining trend is the rise in total assets and decline in net income.

Debt Ratio: Also known as the debt to equity ratio, the debt ratio reveals a company's entire financial plan. It calculates the overall liabilities of the business as a percentage of its total assets. It is a reliable gauge of a company's financial leverage.

Graphical Presentation

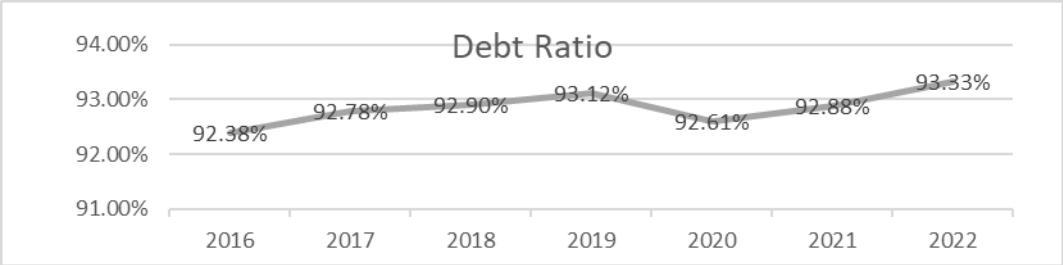

Figure 4.3: Debt Ratio

Interpretation: The average debt ratio of private commercial banks from 2016 to 2022 is shown in the figure. The percentage values climbed gradually from 92.38% in 2016 to 93.33% in 2022, suggesting a pattern of steady rise in the performance or a specific statistic pertaining to private commercial banks over this period. larger risk is indicated by a larger debt-to-asset ratio. The debt ratio of the organization must be maintained. A debt-to-asset ratio of more than 90% suggests that debt is used to finance a sizable amount of assets, which may have an impact on the bank's leverage and financial risk.

4.2. Descriptive Statistics

A data set is described as is using descriptive statistics. Stated differently, descriptive statistics refrain from making inferences about larger datasets or populations as a whole.

Table 4.1 Descriptive Statistics

Variables	Mean	Std. Deviation
ROE	.125191	.0373316
ROA	.009069	.0034588
DR	.927316	.0163732
GF	12617.738136	17138.9284816

The mean return on asset for private commercial banks is.009069 with standard deviations of.0034588, while the mean return on equity is.125191 with standard deviations of.0373316. Conversely, DR has a standard deviation of.0163732 and a mean value of.927316. Private commercial banks (Sample) have green financing averages of 12617.738136 and 17138.9284866, respectively, which are higher mean and standard deviation values.

4.3. Correlation analysis

A correlation is an indication of a relationship, although it does not always imply causation and effect

between two or more variables. Simply put, when two variables are linked, it indicates that changes in one also affect the other. By calculating a statistic called a correlation coefficient, we can determine correlation. The intensity and direction of the association between variables are shown by a correlation coefficient, which is a number between -1 and +1. Typically, the correlation coefficient is shown as the letter r.

The correlation coefficient's sign—positive or negative—indicates the relationship's direction.

- When two variables have a positive correlation, they move in the same direction.
- When there is a negative correlation, the variables move against one another.

Table 2: Correlation Matrix

	ROE	ROA	DR	GF
ROE	**1**	**.814****	**-.064**	**0.042**
ROA	**.814****	**1**	**-.614****	**.020**
DR	**-.064**	**-.614****	**1**	**-.013**
GF	**0.042**	**0.02**	**-.013**	**1**

ROE and ROA:

The correlation coefficient for ROE and ROA is 0.814. Between ROE and ROA, there is a significant positive association (0.814). This implies that Return on Assets tends to increase along with Return on Equity.

ROA and DR:

-0.614 is the correlation coefficient. The debt ratio and return on assets (ROA) have a significant negative association (-0.614). This suggests that the Debt Ratio tends to drop as Return on Assets improves and vice versa.

ROE and DR:

-0.064 is the correlation coefficient. The relationship between ROE and Debt Ratio is merely weakly negative (-0.064). The weak correlation indicates that the relationship between the debt ratio and return on equity is not very strong.

GF and ROE/ROA/DR:

Coefficients of correlation: -0.013 (DR), 0.02 (ROA), and 0.042 (ROE). The relationship between Green Finance and ROE/ROA/DR is merely marginally positive. A weak association is shown by correlation coefficients that are around zero.

In summary:

- ROE and ROA have a strong positive correlation.
- ROA has a strong negative correlation with Debt Ratio.
- There is a weak negative correlation between ROE and Debt Ratio.
- Green Finance has minimal correlation with ROE, ROA, and Debt Ratio.

4.4. Regression Analysis

Regression analysis was used to examine the data in order to determine whether or not green finance and bank profitability are related (we utilized four indicators in this analysis).

Return on Equity (Y1):

R-squared:

This statistic indicates the proportion of the variation of the dependent variable that the model's independent variables can account for. It has a range of 0 to 1, where 1 means the model fully explains

variability and 0 means it does not explain any variability at all. Although higher R-squared values indicate a better fit, this does not always imply that the model is an absolute good predictor.

Adjusted R squared:

One way to overcome a drawback of R-squared is to use adjusted R-squared, particularly in multiple regression models (which have more than one independent variable). Adjusted R-squared penalizes the addition of needless variables, whereas R-squared tends to increase more variables added to the model (even if they don't improve the model significantly).

It modifies R-squared based on the number of indicators in the model. By preventing over fitting, this modification offers a more precise indicator of the model's goodness of fit.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.042[a]	.002	-.017	.0376417

a. Predictors: (Constant), X1

Based on our investigation, we discovered that the adjusted R2 is -17% when additional predictors are taken into account, and the R2 is 2%, or 2% of the dependent variable variance that can be explained by the independent variables in the model.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	1	.000	.098	.756[b]
	Residual	.077	54	.001		
	Total	.077	55			

a. Dependent Variable: Y1

b. Predictors: (Constant), X1

There is no significant effect on ROE, according to the study, which found an insignificance level of sig=.756b where p>0.05.

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.124	.006		19.793	.000
	X1	9.251E-08	.000	.042	.312	.756

The (green finance) X1 coefficient in this analytical model is 0.042, and its p-value is.756, which is higher than 0.05. Accordingly, the GF is not statistically significant in the context of the ROE regression model.

$$\mathbf{ROE = \beta 0 + \beta 1\ (GF) + \varepsilon}$$

=0.12+0.42+0.3767171

Based on the analytical formula, the banking industry's financial performance will be 12% while all other variables remain constant. The X1 coefficient is 0.42(42%), meaning that a 1% increase in X1 would result in a 42% rise in ROE. This demonstrates that financial performance and green finance have a good link. Green finance has an insignificantly favorable effect on return on equity at a 5% significance level (P=.756). With a correlation value of 0.42, an increase or drop of one unit in green financing is correlated with a corresponding rise or reduction of 0.42 in return on assets. According to the study's findings, ROE is not significantly impacted.

[The null hypothesis is not rejected]

Return on Asset (Y2):

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.020[a]	.000	-.018	.0034899

a. Predictors: (Constant), X1

The degree to which changes in the independent variable may account for variations in the dependent variables is indicated by the coefficient of determination. Based on our analysis, we discovered that R= 0.02 or 2% (correlation coefficient), R^2 is 0.00, and adjusted R^2 is -0.018 or -18%.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	1	.000	.023	.881[b]
	Residual	.001	54	.000		
	Total	.001	55			

a. Dependent Variable: Y2

b. Predictors: (Constant), X1

The study found an insignificance level of sig= 0.881[b] where p<0.05 and therefore, there is an insignificant relationship between ROA and Green finance of commercial banks in Bangladesh.

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.009	.001		15.521	.000
	X1	4.136E-09	.000	.020	.151	.881

ROA = β0 + β1 (GF) + ε

=.009+0.020+0.003489

Based on the mathematical calculation, the banking sector's financial performance will be 9% while all other circumstances remain constant. The (green finance) X1 coefficient is 0.02(20%), meaning that a 1% increase in X1 would result in a 20% increase in ROE. This demonstrates that financial

performance and green finance have a good link. At a 5% level of significance (P=.881), green financing has an insignificantly positive impact on return on equity. Its coefficient value is.020, meaning that a unit rise or decrease in green financing corresponds to a.020 times increase or reduction in return on asset. This partnership is constructive. The analysis comes to the conclusion that green financing has little effect on banks' return on assets. **[We fail to reject null hypothesis and accept null hypothesis]**

Return on Debt:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.013[a]	.000	-.018	.0165226

a. Predictors: (Constant), X1

Based on our analysis, we discovered that R= 0.02 (2%) (correlation coefficient), R^2 is 0.00 that means the independent variables explain 0% variations of the dependent variable and adjusted R^2 is -0.018 (-18%)

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	1	.000	.010	.922[b]
	Residual	.015	54	.000		
	Total	.015	55			

a. Dependent Variable: Y3

b. Predictors: (Constant), X1

From the ANOVA table, the analysis discovered an insignificant correlation between ROA and green finance of Bangladeshi commercial banks at the insignificance level of sig= 0.922b where p>0.05. Therefore, it is not possible to predict with any degree of accuracy how green financing, or green banking, will impact Bangladeshi commercial banks' return on assets (ROA).

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.927	.003		337.205	.000
	X1	-1.287E-08	.000	-.013	-.099	.922

a. Dependent Variable: Y3

DR = β0 + β1 (GF) + ε

= .927-.013+0.003489

The analytical equation indicates that the X1 (green finance) coefficient is -.013(-13%), meaning that

a 1% rise in X1 would result in a 13% fall in DR. At a 5% level of significance (P=.922), the green finance of private commercial banks has no effect on the debt ratio (coefficient value = -.013). This means that a unit rise or decrease in green finance corresponds to a.013 times increase or decrease in the debt ratio. This is a relationship that is inverted. It implies that a bank is less likely to invest in green financing the more solvent it is. This outcome illustrates the phenomenon of the least developing countries, which is greater scrutiny of the external capital in the capital structure and lower corporate spending on green financing as a result of external capital payments. The study accepts H_{30} hypothesis indicates that green financing insignificantly impacts the return on assets.

[We fail to reject the null hypothesis and accept the null hypothesis]

5. Findings and Discussion

Return on Equity (ROE): It is usually stated that ROE in percentage terms, and higher is better (Suwarno, 2004). ROE increased to 12.43% in 2018 and down to 10.29% in 2022, with fluctuations throughout time. A downward trend in ROE is alarming because it suggests that banks are becoming less profitable from the investments made by their shareholders.

Return on Asset (ROA): Any bank's return on assets (ROA) is influenced by both internal and external factors, such as governmental policies and prevailing economic conditions (Sufian, 2011). From 2016 to 2019, ROA dropped dramatically to 0.74%. In 2020 and 2021, ROA increased somewhat, but in 2022, it fell once again. Profitability is impacted by a decline in net income and an increase in total assets, which is the cause of the declining trend.

Debt Ratio: From 92.38% in 2016 to 93.33% in 2022, the debt ratio climbed gradually. Risk Implication: Commercial banks need to closely monitor the debt-to-asset ratio because it indicates increased risk (Lusy, 2018).

Descriptive Statistics: The descriptive study concentrates on important financial metrics associated with green finance and financial success. These metrics include debt ratio (DR), return on equity (ROE), return on assets (ROA), and green finance. The mean return on asset for private commercial banks is.009069 with standard deviations of.0034588, while the mean return on equity is.125191 with standard deviations of.0373316. Conversely, DR has a standard deviation of.0163732 and a mean value of.927316. Private commercial banks (Sample) have green financing averages of 12617.738136 and 17138.9284866, respectively, which are higher mean and standard deviation values. Descriptive statistics show that there is a positive correlation between banks' financial performance and green finance.

Correlation analysis: The correlation analysis reveals a significant positive relationship between ROE and ROA. Debt Ratio and ROA are strongly correlated negatively. The relationship between ROE and Debt Ratio is slenderly negative. There is little relationship between debt ratio, ROE, and ROA and green finance.

R**egression Analysis:** Regression study demonstrates that there is no meaningful correlation between financial performance and green financing. ROE: higher than 0.05, with a p-value of.756. ROA: The p-value is higher than 0.05 at 0.881. DR: The P value is higher than 0.05 at 0.922.(Signature threshold: 5% or 0.05)

At the 5% significance level, private commercial banks' green financing has no discernible beneficial effect on their financial performance.

6. Recommendation & Conclusion

6.1. Recommendation

- Banks should concentrate on increasing operational effectiveness if the ROA has been declining. This could involve investments in technology to increase productivity, process optimization, or cost-cutting strategies. Banks should increase net income from total assets. (managing assets effectively)
- To boost profitability, banks should raise total income from total equity.
- Banks should increase total assets form total debt. Banks should assess whether the cost of servicing the debt aligns with the bank's operational efficiency. Evaluate opportunities to reduce costs without compromising the quality of operations.

6.2. Conclusion

In Bangladesh, green financing is still relatively new for commercial banks. All banking undertakings aimed at reducing environmental pollution would be considered green banking projects in the emerging ‘Go Green’ era (Khan I. H., 2024). By providing green money and implementing green prices in the many sectors of the community, green banking practices improve the environment and the economy. Green finance is growing in importance on a global scale, particularly in poor nations like Bangladesh (Alam, 2017). Using a sample of particular private commercial banks, this study examines the relationship between green financing and financial performances on an annual basis over a seven-year period, from 2016 to 2022. The study's overall conclusions will help banks make decisions about their investments in green finance, preservation of the environment, and organizational profitability. Lastly, when additional data becomes available, future studies should focus on analyzing the effects (positive, steady, negative) of the current legislation and how effectively the banks are adhering to the green principles. This study's attention shouldn't be limited to banks and other financial institutions; it should also determine how the environment and sustainable development are affected by the implementation of current green rules. As a result of the verified information that will be provided, more people will be aware of the state of the economy and be able to act responsibly and sustainably.

6.3. Suggestion for Further Research:

It is necessary to look into the relationship between green finance and risk management practices of commercial banks in Bangladesh. Additionally, research needs to be done to determine how Bangladesh's economy is affected by green funding. The study ought to demonstrate how green banking affects the economy and whether such effects are favorable or unfavorable. The research should clarify if green financing results in short- and long-term cost savings for Bangladesh's commercial banks.

7. References

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