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Sustainability Disclosure, Bank Performance and the Moderating Role of Camel Rating System: Evidence from a Developing Nation

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Abstract

This study examined the correlation between sustainability disclosure and firm performance. We further investigated the moderating effect of the camel rating system on the relationship between sustainability disclosure and firm performance. We used data from annual reports of selected banks and the Central Bank of Bangladesh. The sample included 60 banks over a ten-year period (2011–2020) totaling to 600 observations. The Panel data were analyzed using the fixed effect method. Findings revealed that components of sustainability disclosure had a positive influence on Return on Equity (ROE). On the other hand, sustainability disclosure had negative influence of social disclosure on Return on Assets (ROA). Additionally, Camel rating system showed a significant moderating effect on the relationships between sustainability disclosure and firm operational performance. This paper expanded the literature on sustainability disclosure, particularly on developing nations' perspective. In order to persuade and motivate businesses to become more environmentally friendly, which will have a good impact on society and the economy as a whole, this study advised relevant organizations to adopt the sustainability disclosure protocol recommended by the Central Bank of Bangladesh.

Keywords: *Sustainability Disclosure; Financial Performance, Operational Performance, Camel Rating System, Bangladesh.*

Introduction

Sustainability disclosure is now a common practice among organizations globally and has become a crucial issue for enterprises (Amin-Chaudhry, 2016; Crane & Glozer, 2016). Due to increased stakeholder interest in corporations' environmental, social, and governance performance; research penetration towards sustainability disclosure has expanded (Dhaliwal et al., 2014). Firms are motivated by stakeholder pressure to disclose non-financial information to its stakeholders, such as social, environmental, and governance issues, in addition to their yearly financial reports. As evidence grows that integrating financial and non-financial information offers a better understanding of a firm's sustainability initiatives, there is an emphasis on various non-financial metrics nowadays (Atkins & Maroun, 2015). It is perceived that reporting on organization's sustainability performance will give internal and external stakeholders a clear

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idea of its impact and can increase efficiency and improve performance. Bangladesh's economy has been growing faster than anticipated in recent years. Free trade, exports and imports have expanded dramatically despite inflation, current account deficit, widening trade deficit, as well as fewer remittances (Manni & Afzal, 2012). Although the banking sector is actively contributing to the country's economic growth (Sufian & Habibullah, 2009), the business environment of the South-Asian nation yet remains unsustainable. Moreover, the nation is one of the most vulnerable to the effects of climate and social changes in the globe (Ahiduzzaman & Islam, 2011).

Targeting to achieve sustainable development, Bangladesh is attempting to put effective environmental and green banking guidelines into practice under the direction of the Central Bank, just like other neighboring nations such as India (Sharma & Vredenburg, 1998), Pakistan, and Sri Lanka. According to Mani (2011), banks have a major role and responsibility in supplementing governmental efforts towards substantial reduction in carbon emission and achieve sustainable development. Bangladesh Bank (Central Bank of Bangladesh) recognized the significance of sustainability issues (Mohammad, Abedin, & Rahman, 2017) and accordingly, the Environment Risk Management Guidelines (ERM) and Green Banking Guidelines were introduced in 2011 (Bangladesh Bank, 2011) in response to the requirement to safeguard banks and financial institutions from risks resulting from the deteriorating environmental scenario and the effects of social change. Since then, the criteria for Credit Risk Management (CRM) are being improved continuously in order to achieve the 2030 United Nations Sustainable Development Goals (SDGs) (Weber, Hoque, & Islam, 2015). For the banks and financial institutions operating in Bangladesh, Bangladesh Bank also issued a comprehensive Environmental and Social Risk Management (ESRM) rules. Along with the recommendations, a Risk Rating Model was also released. According to Sharif, Nasir, Khanum, and Moniruzzaman (2016), these rules seek to lessen the harm that improper industrial waste management procedures bring to the environment, simultaneously reducing harming of local biodiversity as well as minimizing unsafe labor practices that contribute to hazardous working conditions. Additionally, these regulations will address social issues like child labor, discrimination, workplace harassment, and minimum wage (Masukujjaman & Aktar, 2013).

There is growing evidence suggesting that climate and social change risks have important implications for financial stability, although the analysis of the complexity of the potential risks to the financial sector is still at an early stage. Moreover, the question remains that whether the implementation of corporate sustainability has positive or negative effects on the financial performance of Bangladeshi banks, since these regulations have been in place for compliance in one way or another among the banks since 2012 (Bangladesh Bank, 2017). In light of the above, the objective of this study was to determine how sustainability disclosure affect the 60 commercial banks currently doing business in Bangladesh in terms of their financial and environmental performance. Additionally, we examined the moderating effect of the camel rating system on the relationship between sustainability disclosure and firm performance.

Literature Review

Sustainability Disclosure

Often referred to as - Corporate Responsibility Reporting (CRR) or Triple Bottom Line (TBL), Sustainability Reporting has much evolved since the 1980s. The term “triple bottom line” reflects emphasize on three aspects - profits (economic), people (social), and planet (environmental) (Elkington, 1998). Hence, sustainability reporting represents a method of

reporting economic, environmental and social performance of an organization. In context of financial institutions, each bank has to publish the reporting following the international standard of Global Reporting Initiative (GRI). According to GRI, a sustainability report is a report published by a company or organization about the economic, environmental and social impacts caused by its everyday activities. A sustainability report also presents the organization's values and governance model, and demonstrates the link between its strategy and its commitment to a sustainable global economy. Sustainability reporting is a key tool to help an organization in setting goals measuring progress and managing sustainability. According to the GRI guidelines, a typical report should address the following areas: vision and strategy; corporation profile; governance structure and management systems; GRI content index; as well as performance criteria (economic, social and environmental) (Adams & Narayanan, 2007).

Dimensions of Sustainability Disclosure

Economic Dimension

The economic performance of an organization is fundamental to understanding the organization and its basis for sustainability. Although an organization may be financially viable, this may have been achieved by creating significant externalities that impact other stakeholders. Corporate economic sustainability is intended to measure the economic outcomes of an organization's activities and the effect of these outcomes on a broad range of stakeholders (GRI, 2016). Items such as payment to capital providers, dividend policy, capital structure, retained earnings, infrastructural development, are some of the prominent indicators of economic sustainability in financial institutions. Economic sustainability is defined by Basiago (1998) as implying "a system of production that satisfies present consumption levels without compromising future needs". More specifically, economic sustainability was defined by Hicks (1946) as "the amount one can consume during a period and still be as well off at the end of the period". The economic sustainability of a firm is essential to its viability (Simpson & Radford, 2012), and it focuses on a firm's ability to provide support for future generations (Sheth et al., 2011).

Social Dimension

The first pillar of company sustainability is social sustainability, which refers to long-term initiatives that have an impact on society's well-being (Elkington, 1998). These efforts include, but are not limited to, charitable activities (Chow & Chen, 2012), social inequality reduction (Alhaddi, 2015), human rights protection (Reichert, 2011), and employee care in areas such as employee health, labor practices, employee training, skills development, workplace safety, reducing workplace injury and illness rates; and preventing workplace discrimination (Chow & Chen, 2012). The impact of an organization on the social systems in which it functions is referred to as the social component of organizational sustainability. Labor practices, human rights, society, and product responsibility are all factors that influence GRI social performance (GRI, 2016). The social aspect of sustainability is concerned with the organization's effects on the social systems in which it functions.

Environmental Dimension

The term "corporate environmental sustainability" refers to a company's efforts to safeguard natural resources and maintain the environment (Hart, 1995). Environmental sustainability concerns an organization's impact on living and non-living natural systems, including ecosystems, land, air, and water. Environmental sustainability issues cover performance related

to input (e.g., material, energy, water) and output (e.g., emissions, effluents, waste), biodiversity, environmental compliance, and other relevant information such as environmental expenditure and the impacts of products and services (GRI, 2016; Jony et al., 2019). Banks have to emphasize to assess the environmental risk by identifying the magnitude of the environmental issues (i.e., land degradation, water pollution and scarcity, air pollution, biodiversity losses, impacts from natural disasters, rapid population growth, improper use of land, poor resource management, and uncontrolled discharge of pollutants) before lending as the bank's loan exposure could escalate environmental risks through the borrowing entity.

Green Dimension

The most important themes of twenty first century are the Environmental protection and sustainable ecological balance through green product production that must be incorporated by all functional areas including banking (Verma, 2012). Although commonly, the concept of sustainability acknowledges three dimensions (i.e., economic, social, and environmental); however, for banking activities a fourth dimension, i.e., green is commonly used to capture corporate sustainability. In Bangladesh some banks incorporated the green banking division that focus on green policy, products, and green initiatives. Green Banking helps to create effective and far-reaching market-based solutions to address a range of environmental problems (Bahl, 2012). Bihari (2011) indicated that Green Banking starts with the aim of protecting the environment wherein banks should consider before financing a project whether it is environment friendly and has any implications for the future. Green banking could be translated as combining operational improvements, technology and changing client habits in banking. According to Biswas (2011), the adoption of green banking practices will not only be useful for environment, but would also benefit in greater operational efficiencies, a lower vulnerability to manual errors and fraud, and cost reductions in banking activities.

The CAMEL Rating System

Researchers from all around the world used the CAMEL framework as their financial indicator to analyze the financial performance of banks and endorsed it as the optimum tool for evaluating banks performance (e.g., Jaffar & Manarvi, 2011; Balasundaram, 2008; Sangmi & Nazir, 2010). Hence, considering the importance of a comprehensive performance evaluation of Bangladeshi banking system, we have used CAMEL rating system as a moderator on the relationship between sustainability performance and firm performance for a nuanced and comprehensive understanding of the subject matter. The Uniform Financial Institutions Rating System (UFIRS) that forwarded the CAMELS rating system, is defined as a performance evaluator frequently used in the banking industry (Desta, 2016). Although the financial sector has undergone enormous change, the CAMELS grading system has stayed mostly constant for almost four decades.

The CAMELS rating system is hence a trustworthy and efficient supervisory instrument for determining the soundness of a financial institution (Desta, 2016; Rostami, 2015). The CAMELS rating system is comprised of five elements. Each of the five components is given a component rating, with the evaluation taking into account the financial institution's size, business model, level of activity complexity, and risk profile (Wachira, 2010). An evaluation and overall composite rating, ranging from 1 to 5, are given to a financial institution in accordance with the system (FDIC 2014). A grade of 1 denotes the best performance, translating to the most advanced risk management techniques, and the least concern for oversight. The lowest rating, 5, denotes the worst performance, reflecting inadequate risk management procedures, and the

greatest degree of worry for oversight (FDIC 2014). The CAMELS composite rating scale, which ranges from 1 to 5, can be used to measure and evaluate each component of the CAMELS rating system . Based on extensive literature review, Table 1 shows the transition of the CAMELS financial ratios to the progressive scale, which starts with "1" as strong and ends with "5" as weak, for each equation employed. When analyzing the CAMELS rating for banks, Bangladesh Bank uses the same methodology and standards as prescribed in Table 1.

Code	CAMELS Component	Ratio's Ranking				
		1	2	3	4	5
C	Capital Adequacy (CRAR)	> 11%	8 - 11%	4 - <8%	1 - 4%	< 1%
A	Asset Quality (NPL to Total Loan Ratio)	< 1.5%	1.5 - 3.5%	3.5 - 7%	7 - 9.5%	> 9.5%
M	Management Efficiency (Operating Expense to Operating Income Ratio)	< 25%	26 - 30%	31 - 38%	39 - 45%	> 46%
E	Earnings Ability (NIM)	> 1.5%	1.25 - 1.5%	1.01 - 1.25%	0.75 - 1.00%	< 0.75%
L	Liquidity (ADR)	<60%	60 - 65%	65 - 70%	70 - 80%	>80%
S	Sensitivity (P/E)	<10%	10-15%	15%-20%	20%-25%	>25%

Table 1. Camel Rating Scale

Source: (Sarwar & Asif, 2011)

A bank's composite rating is given on a scale of "1" to "5", with "1" denoting the highest rating. This rating reflects the bank's robust performance coupled with best management procedures appropriate to its size, complexity, risk profile, and level of minimal supervisory anxiety. Rating "5", on the other hand, represents a bank's lowest ranking and reflects its most blatantly subpar performance as well as inadequate management techniques in light of its size, complexity, and risk profile as well as the highest level of supervisory concern. The composite rating, which is used to assess performance and determine the position of the banks in the market, is displayed in Table 2.

Composite Rating	Range	Description	Rating Analysis Interpretation
1	1- 1.4	Strong	Strong and sound in every aspect, no intensive supervisory responses are required.
2	1.5-2.4	Satisfactory	Fundamentally sound with modest correctable weakness, limited supervisory response.
3	2.5-3.4	Fair	A combination of weaknesses, if not redirected the weaknesses will become severe. Watch category. Pre-requisites are more than regular supervision.
4	3.5-4.4	Marginal	Excessive weaknesses, unless adequately addressed, could impair the future viability of the bank. Requires close supervision.
5	4.5-5	Unsatisfactory	High risk of failure in the immediate period. The bank should be under constant

			supervision/cease and desist order.

Table 2. Composite Rating

Source: Credit Rating Agency of Bangladesh Ltd. (2020)

Underlining Theory

We base our assumption of a significant positive effect of Sustainability Disclosure on Company performance on the Legitimacy theory (Deegan, 2014). In organization's perspective legitimacy has been defined by Lindblom (1994) as a condition or status which exists when an entity's system is congruent with the value system of the larger social system of which the entity is a part. When a disparity, actual or potential, exists between the two value systems, there is a threat to the entity's legitimacy. Firms should do the "right things" or avoid doing the "bad things" to gain legitimacy (Buhr, 1998, p. 165). Legitimacy theory is based on the premise that a corporation's ability to exist in society is contingent on a social contract between the firm and its stakeholders (Deegan, 2014). The social contract is built on stakeholder expectations about how a company should run, both implicit and explicit (Deegan, 2006). The explicit stakeholder expectations for the social contract are described as "legal requirements" by Deegan (2014), whilst the "non-legislated societal expectations" are implicit. Existing research (e.g., Deegan & Rankin, 1996; Milne & Patten, 2002) found that establishing and sustaining business legitimacy are important motivators for management to report on social and environmental performance. Hence, based on the legitimacy theory, we argue that sustainability disclosure can aid in the establishment and maintenance of stakeholder expectations, resulting in improved financial outcomes.

As for the influence of CAMELS rating in present study, we borrow the lens of Institutional Theory (Meyer & Rowan, 1977). This theory assumes that the processes of organizations take into account actions based on structures such as conventions, schemes, and routines, as well as rules enacted through authoritative standards that influence social conduct in organizations (Scott, 2004). They tend to have many degrees of jurisdiction, ranging from a system-based world to one based on localized interpersonal interactions. To remain competitive and provide services to a large number of clients, banks must maintain proper capital adequacy, earning ability, Management efficiency and asset quality. Accordingly, firms in the banking industry of Bangladesh are expected to follow the Central Bank's prudential regulations to ensure they are competitive by complying with the banking statute and the Central Bank Act. Hence, we argue that CAMELS rating as a convention to reflect compliance with the Central Bank as well as competitiveness could moderate the relationship between sustainability disclosure and firm performance among the banks in Bangladesh.

Measuring Performance

Scholars often used three alternatives to measure corporate performance: accounting-based measurements, market-based indicators, or a combination of the two. For accounting-based indicators of performance, several academics have depended on a firm's return on assets (ROA) and return on equity (ROE). However, other academics worked with market-based metrics (such as Tobin's Q) (Wagner, 2010). According to López et al. (2007), accounting-based measures are simpler and more accurate at predicting sustainability performance. Assuming that shareholders are the primary stakeholder group, market-based metrics suffer from knowledge asymmetry between managers and shareholders (Orlitzky et al., 2003). Nevertheless, certain studies have

combined accounting- and market-based indicators to compensate the shortcomings of both methods (e.g., Callan & Thomas, 2009). Notwithstanding the above, in line with majority of relevant literature, accounting-based measures are employed for this study.

Sustainability Disclosure and Performance

Numerous empirical studies using ROA have examined the link between sustainability disclosure and financial performance (e.g., Nishitani & Kokubu, 2012; Jayachandran et al., 2013). Some of them found a positive correlation between ROA and sustainability disclosure (Fatemi et al., 2015; Malik et al., 2015). However, other studies showed that financial performance and sustainability disclosure had negative relationship with one another (e.g., Kim & Lyon, 2015). No significant relationship between ROA and sustainability disclosure has also been report by numerous studies (e.g., Renneboog et al., 2008). As for ROE, as an indicator of performance, a heated debate exists over the relationship between sustainability reporting and company operating performance (Fatemi et al., 2017). Early research that looked at the connection between operational performance (ROE) and sustainability disclosure discovered an inverse link (e.g., Wright & Ferris, 1997). According to existing studies, the correlation between ROE (operational performance) and sustainability disclosure is weak (Kim & Lyon, 2015; Fisher-Vanden & Thorburn, 2011). Such data implies that investors believe that disclosing sustainability is an expensive investment. On the other side, new research has discovered a positive relationship between operational performance and sustainability disclosure (Fatemi et al., 2015; Malik, 2015). Yet, Horvathova (2010) reported that no statistically significant link exists between operational performance and sustainability disclosure. According to the literature on environmental, social, and governance (ESG) in the workplace, sustainability disclosure can provide a competitive edge for the company (Rettab et al., 2009; Samy et al., 2010; Uwuigbe & Egbide, 2012). In terms of the sustainability dimensions, economic expansion is believed to be a persistent driver of increased productivity. A sustainable banking approach could provide value by focusing on actions that benefit people and the environment. Banks are better positioned to create value while contributing to economic growth thanks to initiatives like the "triple bottom line" (Slaper & Hall, 2011), "shared value creation" (Porter & Kramer, 2011), "resilient banking system", and "the business case for sustainability" (Schaltegger & Wagner, 2017).

In terms of the social dimension, firms are obligated to report to their stakeholders on the social impact of their operations and how those operations provide good social value for people and society in order to meet stakeholder needs (Dempsey et al., 2011). According to Margolis and Walsh (2003), revealing social information improve financial performance. Interestingly, Balabanis et al. (1998), on the other hand, found a negative link between social transparency and corporate performance. We argue that firms strive to minimize costs and improve benefits without harming the environment, as well as to develop their resources while serving the needs of stakeholders. This brings us to the environmental dimension of sustainability, wherein firms must disclose stakeholders on the environmental impact of their operations and how they address issues such as eco-friendliness, recyclability, substitute materials; biodegradable packaging; remanufacturing; recycling; and returning products at the end of their life cycle. Evidence suggest that disclosure of environmental practices enhance financial performance (Jo & Harjoto, 2011). According to Jaggi and Freedman (1992), businesses may be interested to improve environment's performance since it influences their financial performance. However, Smith et al. (2007), discovered an inverse link between environmental disclosure and corporate performance.

People remain fascinated with profitability and environmental financial performance simultaneously. Perhaps, therefore green banking is linked to financial efficiency (Ahmad et al., 2018). From a local perspective, Hoque et al., (2019) looked at Bangladeshi nonconventional and commercial banks' analyses of monetary success and consumer demand and concluded that the green accounts are the key component of a firm to improve financial output, when green costs are reduced. In similar context, Rounaghi (2019) extended that green GDP calculations will assist national governments and politicians to pay more attention towards sustainability issues, even if they prefer their countries' rapid financial growth. Moreover, He et al. (2018) showed that green credit regulations can help banks compete more effectively. According to Wang (2016), the performance of green credit through environmental risk management and social responsibility impacts the bank's ability and reputation, which in turn effects bank's core competitiveness. Hence, we believe, increasing the green initiatives and risk management committees leads to enhanced financial efficiency and stabilize financial systems, particularly in banks. In light of the above, we propose the following hypotheses:

H_1: *Economic disclosures has positive and significant impact on financial performance*

H_2: *Social disclosures has positive and significant impact on financial performance*

H_3: *Environmental disclosures has positive and significant impact on financial performance*

H_4: *Green disclosures has positive and significant impact on financial performance*

H_5: *Economic disclosures has positive and significant impact on operational performance*

H_6: *Social disclosures has positive and significant impact on operational performance*

H_7: *Environmental disclosures has positive and significant impact on operational performance*

H_8: *Green disclosures has positive and significant impact on operational performance*

Camel Rating System, Sustainability Disclosure, and Firm Performance

In the banking environment, the correctness of the relationship between corporate sustainability and performance is dependent on the camel rating system. The CAMELS system is most commonly used to rate financial institutions. Institutions with low ratings are either doing poorly or are on the verge of a major crisis. These organizations are less long-term focused, have poor financial performance, and are less competitive. Institutions with higher ratings demonstrate that they are capable of long-term development and are more competitive. It is potential to consider the moderating impact of the CAMEL rating system in evaluating bank performance simply because there is a positive association between the degree of rating and bank competitiveness.

The CAMELS method assesses the financial health of financial organizations based on six critical dimensions of the bank's operations and performance, as listed by Sahajwala and Van den Bergh (2000). Sangmi and Nazir (2010) employed CAMEL parameters to assess the financial performance of two major northern Indian banks in terms of capital adequacy, asset quality, management competency, and liquidity. In a separate study, Roman and Sargu (2013) compared the financial soundness of Romanian commercial banks using the CAMELS framework, emphasizing on the banks' strengths and vulnerabilities. Later, Venkatesh and Chithra (2014) further invoked the CAMELS model to examine the financial efficiency of selected commercial banks in Bahrain. In local context, Rahman and Islam (2018) attempted to examine and compare the performance of Bangladesh's banking sector based on their performance using the CAMELS rating method.

Bank performance is driven by a multitude of factors, hence, the majority of previous research concentrated at the impact of corporate sustainability reporting on accounting and market-based performance. However, since these sets of variables in the banking context cannot accurately depict the relationship between corporate sustainability and performance, Brooks and Oikonomou (2018) proposes adding moderating variables to help managers understand the relationship and make decisions about sustainability policies, practices, and disclosure. Therefore, based on the above, we propose the following hypotheses:

H_9: *Camel rating system moderates the relationship between economic disclosure and financial performance*

H_{10}: *Camel rating system moderates the relationship between social disclosure and financial performance*

H_{11}: *Camel rating system moderates the relationship between environmental disclosure and financial performance*

H_{12}: *Camel rating system moderates the relationship between green disclosure and financial performance*

H_{13}: *Camel rating system moderates the relationship between Economic disclosure and operational performance*

H_{14}: *Camel rating system moderates the relationship between social disclosure and operational performance*

H_{15}: *Camel rating system moderates the relationship between Environmental disclosure and operational performance*

H_{16}: *Camel rating system moderates the relationship between green disclosure and operational performance*

Methodology

State-owned commercial banks (SOCBs), specialized development banks (SDBs), private commercial banks (PCBs), and foreign commercial banks (FCBs) formed the population for this study. A total of 61 scheduled banks were operational in Bangladesh within the period 2011 to 2020. We used secondary data from annual reports of selected banks and the Central Bank of Bangladesh. The sample included 60 banks over a ten-year period (2011–2020) totaling to 600 observations. The Panel data were analyzed using the fixed effect method. Due to a lack of information, one scheduled bank was eliminated from the sample.

Findings

The secondary data were analyzed by using the STATA 14.0 and SPSS 22.0 to achieve a diversified statistical analysis. Correlation Matrix, Multivariate Linear Regression, and other statistical tests are used to examine whether or not sustainability reporting in annual reports affects a company's performance. Here, we use data diagnosis (Chronbatch's alpha, normality rest, model diagnosis (multicollinearity test), and variable diagnosis (Heteroskedasticity test) to examine the validity and reliability of the data.

Mathematical Models

This section expands on the research model. The first stage of our study investigated the

relationship between the level of sustainability disclosure (Economic, Social environmental, and Green) and company performance. In the model of our study, firm performance is the dependent variable. Firm performance consists of two dimensions: financial and operational performance. To determine the relationship between corporate sustainability reporting and firm performance, we estimate the equations below.

The first model is constructed to investigate the effects of sustainability disclosure on firm performance as follows:

$$Pref = \beta o + \beta_1(Economic\ disclosures) + \beta_2(Social\ disclosures) + \beta_3(Environmental\ disclosures) + \beta_4(Green\ disclosures) + \varepsilon \quad (1)$$

This equation is divided further into two sub-equations based on the performance as follows:

$$ROA = \beta o + \beta_1(Economic\ disclosures) + \beta_2(Social\ disclosures) + \beta_3(Environmental\ disclosures) + \beta_4(Green\ disclosures) + \varepsilon$$

$$ROE = \beta o + \beta_1(Economic\ disclosures) + \beta_2(Social\ disclosures) + \beta_3(Environmental\ disclosures) + \beta_4(Green\ disclosures) + \varepsilon$$

Where: Perf is a continuous variable; the dependent variable is the performance measured by two models (i.e., ROA model, ROE model). β0 is the constant and β1- 4 the slope of the independent variables. The independent variable is corporate sustainability disclosure measured by the four Variables (i.e., Economic disclosure, social disclosure, Environmental disclosure and Green disclosure).

The second model of this thesis investigates the effect of camel rating system on the relationship between sustainability r disclosure and firm performance. Therefore, we estimate the equations below. To determine the effect of camel rating system, we estimate three regression models:

$$Pref = \beta o + \beta_1(Total\ Sustainability\ Disclosure) + \beta_2(Camel\ Rating\ System) + \beta_3(Total\ Sustainability\ Disclosure * Camel\ Rating\ System) + \varepsilon \quad (2)$$

This equation is divided further into two sub-equations based on the performance as follows

$$ROA = \beta o + \beta_1(Total\ Sustainability\ Disclosure) + \beta_2(Camel\ Rating\ System) + \beta_3(Total\ Sustainability\ Disclosure * Camel\ Rating\ System) + \varepsilon$$

$$ROE = \beta o + \beta_1(Total\ Sustainability\ Disclosure) + \beta_2(Camel\ Rating\ System) + \beta_3(Total\ Sustainability\ Disclosure * Camel\ Rating\ System) + \varepsilon$$

Where: Perf is a continuous variable; the dependent variable is the performance measured by two models (e.g., ROA model, ROE model). β0 is the constant and β 1-3 the slope of the independent variables. The independent variable is total sustainability disclosure measured by the four indicators (i.e., economic disclosure, social disclosure, environmental disclosure and green disclosure). The moderator variable is camel rating system.

Reliability and Validity

The descriptive statistics and item reliability are shown in Table 3 for all constructs (ROA, ROE, Camel Rating System, Economic disclosure, social Disclosure, Environmental disclosure, green disclosure, Total Sustainability disclosure). As a conservative indicator of internal consistency reliability, Cronbach's alpha is used. With the exception of two variables, the research

demonstrates that all variables' Cronbach's alpha values are greater than 0.7. This indicates that each item is reliable. In order to find multicollinearity, this study additionally investigated the variance inflation factors (VIFs). All of the variables' VIF values are under 2.6. In general, there are no significant multicollinearity issue.

Variable	Items	Observation	Mean	Standard Deviation	Cronbach's Alpha	Variance Inflation Factors
Return on Asset	1	550	0.693	1.885		1.062
Return on Equity	1	550	7.759	9.513		1.220
Camel Rating System	5	550	2.886	0.586	0.6001	1.096
Economic Disclosure	5	550	0.774	0.255	0.6357	1.060
Social Disclosure	18	550	0.430	0.133	0.7044	1.837
Environmental Disclosure	13	550	0.586	0.202	0.8048	1.575
Green Disclosure	17	550	0.539	0.221	0.7528	2.512
Total Sustainability Disclosure	48	550	0.535	0.139	0.8716	

Table 3. Descriptive Statistics and Reliability

Source: Author(s) own compilation

For the stationary test, we employ the Levin-Lin-Chu unit-root test. Since there are no unit roots and the series are stationary, the null hypothesis is rejected by the p value of (0.000) <0.05 as shown in Table 4. White test is used to test for heteroskedasticity in a linear regression model. Here we see the p value (0.261) is more than 5% level of significant that means we cannot reject the null hypothesis. So, we can conclude that there is no heteroskedasticity.

Source	chi2	df	p
Heteroskedasticity	23.580	20.000	0.261
Stationary Test			0.000
Skewness	5.490	5.000	0.359
Kurtosis	3.990	1.000	0.046
Total	33.060	26.000	0.161

Table 4. Levin-Lin-Chu unit-root test

Source: Author(s) own compilation

Multivariate Regression Analysis

The multivariate regression result is shown in Table 5. The *p*-values for the ROA model (.0004) and the ROE model (.0000) are both statistically significant. Additionally, a positive correlation between ROA and Social Disclosure (1.243) and ROA and Environmental Disclosure (0.205) was found in the regression analysis. ROA and Economic disclosure have a negative correlation (-.09), as do ROA and Green disclosure (-0.261). The company's financial performance (ROA),

however, is unaffected by any disclosure; in this case, the p value is greater than.005.

Separately, all the dimensions of sustainability disclosure have a significant impact on the operational performance (ROE) of the company, where the *p*-values are (0.069), (0.038), (0.039), and (0.066) respectively. Table 5 shows a positive relationship between ROE and Social disclosure (7.204), ROE and Environmental disclosure (4.495), and ROE and Green disclosure (0.104), but a negative relationship between ROE and Economic disclosure (-0.233). According to the results summary, there is no correlation between ROA and sustainability disclosure. On the other side, ROE and sustainability disclosure have a positive relationship.

Equation	Obs	Parms	RMSE	"R-sq"	F-Value
p-Value					
ROA	587	6	3.243362	0.0378	4.563506
0.0004					
ROE	587	6	8.506348	0.1672	23.33766
0.0000					
	Coef.	Std. Err.	t	P>t	[95% Conf. Interval]
Return on Asset					
Camel Rating System	-1.075	0.234	-4.59	0	-1.535 -0.615
Economic Disclosure	-0.090	0.539	-0.17	0.867	-1.149 0.969
Social Disclosure	1.243	1.324	0.94	0.348	-1.358 3.843
Environmental Disclosure	0.205	0.83	0.25	0.805	-1.425 1.834
Green Disclosure	-0.261	0.934	-0.28	0.78	-2.096 1.574
Constant	3.456	0.904	3.82	0	1.68 5.233
Return on Equity					
Camel Rating System	-6.364	0.614	-10.36	0	-7.571 -5.158
Economic Disclosure	-0.233	1.414	-0.16	0.069	-3.01 2.544
Social Disclosure	7.204	3.472	2.07	0.038	0.384 14.023
Environmental Disclosure	4.495	2.176	2.07	0.039	8.769 -0.221
Green Disclosure	0.104	2.45	0.04	0.066	4.917 4.708
Constant	25.838	2.372	10.89	0	21.179 30.497

Table 5. Multivariate Regression Analysis

Source: Authors' result of fixed effects model from STATA.

Panel Data Regression

The panel data technique, particularly an unbalanced panel data technique is used in this study. In general, fixed effects and random effects models are two panel estimator methodologies that

can be used in financial research (Dzingai, & Fakoya, 2017). The unobserved heterogeneity should not be associated with the independent variables is a crucial presumption for deciding between fixed and random effects estimation. The Hausman test has been used to determine whether fixed or random effects estimation is suitable. This study used a fixed effects panel regression model to examine the correlations between the variables. We applied the fixed effects model to examine the association between Sustainability disclosure and company performance as well as the moderating impact of the camel rating system on the relationship between total Sustainability disclosure and company performance. The outcomes of the panel regression utilizing fixed effects for Regression Models 1 and 2 are shown in Tables 6 and 7. The relevant statistics to take note of in the tables are the coefficient (β) of the regressors and the *p*-values. The significance level is set to 95% significance, with p-values at 1, 5, and 10% interpreted to be statistically significant.

Hypothesis Testing

As the results in Table 6 reveal, ROA and ROE fixed effect regression models have high statistical significance and high explanatory power, as the p-values of the F-tests are less than 5% (0.002 and 0.000). As shown in Table IV, the slope coefficients of total sustainability for ROE indicate that total disclosure has a negative significant impact on financial performance, as evident from the coefficient and the fact that *p*-value is less than 1% (0.001). Therefore, we confirm that sustainability disclosure has positive and significant impact on company performance.

	ROA Model				ROE Model			
	Coef.	t-value	p-value	Sig	Coef.	t-value	p-value	Sig
Total Sustainability Disclosure	-0.467	-0.48	0.630		-7.547	-3.31	0.001	***
Constant	1.073	2.02	0.044	**	11.87	9.48	0.000	***
F-test	10.345				10.926			
Sig	0.002				0.000			
R-squared	0.684				0.4524			
Adjusted R square	0.659				0.4233			

Table 6. Summary Result of Fixed Effect Model of First Mathematical Model

Note: *** *p<.01*, ** *p<.05*, * *p<.1*

Source: Authors' result of fixed effects model from STATA.

The results in Table 7 reveal that ROA and ROE regression models have high statistical significance and high explanatory power, as the p-values of the F-tests are less than 1% (0.000 and 0.000). Table 7's results also specify that the inclusion of Camel Rating System as a moderating variable affects the relationship between sustainability disclosure and financial and operational performance, as evident from the coefficient and the p-value of less than 1% (0.008) and 1% (0.002) Therefore, we confirm Hypothesis 2 (H_2): There is a moderation effect of CAMELS rating system on the relationship between sustainability disclosure and Company performance.

	ROA Model				ROE Model			
Variables	Coef.	t-value	p-value	Sig	Coef.	t-value	p-value	Sig
Independent and Moderator Interaction								
Total Sustainability Disclosure	13.841	2.66	0.008	***	30.634	2.49	0.013	**
Camel Rating System	0.677	0.68	0.498		3.26	1.38	0.167	
Total Sustainability Disclosure*Camel Rating System	-4.817	-2.68	0.008	***	-13.017	-3.07	0.002	***
Constant	-1.171	-0.41	0.683		1.976	0.29	0.77	
F-test	7.608				10.119			
Sig	0.000				0.000			
R-squared	0.042				0.055			
Adjusted R square	0.0488				0.0592			

Table 7. Summary Result of Fixed Effect Model of Second Mathematical Model

Note: *** *p<.01*, ** *p<.05*, * *p<.1*

Source: Authors' result of fixed effects model from STATA.

As shown in Table 8, the results reveal that economic disclosures, social disclosures, environmental disclosures, and green disclosures have a positive impact on operational performance (ROE) (if measured separately, as evident from the coefficients and the p-values of less than 5% (0.044), (0.036), 10% (0.08) and 1% (0.006) respectively. But Social disclosure has negative and significant (0.039 at 5%) impact on financial performance (ROA). Similarly, the inclusion of Camel rating System as a moderating variable positively affects the relationships between the Economic disclosure, social disclosure, Environmental Disclosure and Green disclosure components and operational performance (ROE), as evident from the coefficients and the p-values of less than 10% (0.07), 1% (0.000), and 5% (0.003 and 0.016%).

	ROA Model				ROE Model			
	Coef.	t-value	p-value	Sig	Coef.	t-value	p-value	Sig
Model 1								
Camel Rating System	-1.643	-3.63	0	***	5.017	6.01	0.00	***
Economic Disclosure	0.234	0.46	0.646		0.237	0.2	0.044	**
Social Disclosure	-1.534	-1.04	0.039	**	3.086	0.92	0.036	**
Environmental Disclosure	0.174	0.2	0.845		3.572	1.75	0.08	***
Green Disclosure	0.658	0.62	0.537		2.121	0.89	0.006	***
Model 2								
Economic Disclosure *Camel Rating System	-0.311	0.35	0.727		2.789	1.31	0.07	*
Social Disclosure*Camel	-5.68	-3.13	0.002	***	15.192	3.52	0.00	***

Rating System								
Environmental Disclosure*Camel Rating System	-2.819	-2.41	0.016	**	8.144	2.95	0.003	***
Green Disclosure*Camel Rating System	-1.471	-1.22	0.224		6.879	2.41	0.016	**

Table 8. Regressions for Separate Sustainability Disclosure Measures (Fixed Effect Model)

Note: *** *p<.01,* ** *p<.05,* * *p<.1*

Source: Authors' result of fixed effects model from STATA.

Results further revealed that the financial performance of a corporation is unaffected by the disclosure of sustainability reporting, as shown in Table 9 (ROA). This result is in line with Atan et al. (2018) that found no statistically significant relationship between sustainability disclosure and ROA. This result, however, is in contrast to those of other studies that show a positive correlation between sustainability disclosure and ROA (e.g., Aouadi & Marsat, 2018; Zhao et al., 2018). The financial performance of a firm is unaffected when the components of sustainability disclosure are considered separately, as shown in Table 9. The only factor that negatively (-1.534 table 8) and significantly (0.039) affected a company's financial performance was social disclosure. This supports the conclusions of Balabanis et al. (1998) that found a link between social disclosure and company performance. This finding indicates that sharing social information does not improve financial performance.

Limited association between ROA and sustainability disclosure has been found by numerous studies (Renneboog et al., 2008). The negative relationship between financial success and costs results from the long-term tradeoff between costs and benefits. Nyeadi et al. (2018) disapproved of investments with a focus on social responsibility and advocated instead investing in projects that would be successful on their own. The environmental disclosure (*p*-Value = 0.845) and green disclosure (*p*-Value = 0.537) has no impact on a company's financial performance. This result is in line with Horváthová's (2010) meta-analysis, wherein half of the sample supported that the financial performance had either been unfavorably or insignificantly impacted. This means that it's possible for sustainability reporting to have a negative impact on intangible assets like shareholder satisfaction, which is determined by the amount of money invested by shareholders in the company's assets (Lee & Faff, 2009).

Results for the hypotheses are presented in Table 9. Table 10 illustrates how sustainability disclosure might have diverse outcomes (positive or negative), even if a hypothesis is supported (ROE). In line with existing studies (McGuire et al., 1988; Patten, 1991; Sarkis et al., 2010), translating a statistically significant (*p*=.0001; Table 7) and negative (-7.547; Table 7) relationship between the sustainability score and ROE. Such finding implies that shareholders believe that sustainability disclosure is an expensive investment. On the other hand, recent research has revealed that operational effectiveness is favorably correlated with sustainability disclosure (Fatemi *et al.*, 2015; Malik, 2015). Perhaps because organizations have to hire and train new accountants to comprehend and compile sustainability reports, the majority of businesses still decide not to disclose sustainability information. They believe that in the short run, these higher expenses might outweigh the advantages. Additionally, sustainability reporting could be negative to intangible assets like staff loyalty (McGuire et al., 1988). The findings reflect that revealing sustainability information can result in a less effective use of a company's

resources from organizational perspective (Lee & Faff, 2009).

However, as shown in Table 10 when the components of sustainability are considered separately it has a positive effect on a firm's operational performance (ROE). This finding is in agreement with several existing studies that established a positive relationship between sustainability reporting and operational performance (ROE) (Pava & Krausz, 1996; Preston & O'Bannon,1997; Waddock & Graves,1997; Simpson & Kohers, 2002; Callan & Thomas, 2009; Rettab et al., 2009; Samy et al., 2010; Uwuigbe & Egbide, 2012). Disclosure of information on environmental practices increased financial performance (Jo & Harjoto, 2011). We tend to agree with Margolis and Walsh (2003) advocating that the firm's financial performance was improved by providing social information about it. The concept that serving the needs of internal stakeholders—i.e., employees and management—raises a company's operational performance by fostering relationships and boosting employee motivation and loyalty reflected by the positive relationship between sustainability reporting and operational performance.

Variables	ROA Model	ROE model
Total Sustainability Disclosure	Rejected	Supported
Economic Disclosure	Rejected	Supported
Social Disclosure	Supported	Supported
Environmental Disclosure	Rejected	Supported
Green Disclosure	Rejected	Supported

Table 9. Summary of Hypotheses Testing

Variables	ROA Model	ROE model
Total Sustainability Disclosure	Not Sig	-
Economic Disclosure	Not Sig	+
Social Disclosure	(-) Sig	+
Environmental Disclosure	Not Sig	+
Green Disclosure	Not Sig	+

Table 10. Results Signs

As illustrated in Table 9, the relationship between total sustainability disclosure and a Company's Financial Performance is negatively (-4.817 Table 8) impacted by a Camel Rating System. The outcome goes against institutional theory that denotes that activities based on structures like conventions, schemes, and routines as well as rules imposed by authoritative norms influence social behavior in organization, which are taken into account when analyzing organizational processes (Scott, 2004). Table 11 also demonstrates that Camel Rating System has no effect (*p*-Value >.005 Table 8) on the relationship between Economic Disclosure and Financial Performance (ROA) of a Firm. These results are consistent with earlier research showing that the quality of an asset affects the bank's costs and economies of scale. Additionally, assets with a low-quality rating are more likely to become non-performing assets and are unable to sustain the nation's economic growth (Chauhan, Ravi, & Chandra, 2009). However, Camel Rating System has a negative impact on the relationship between a company's financial performance (ROA) and its social (-5.68 Table 8) and environmental disclosures (-2.819 Table 8).

Variables	ROA Model	ROE model
Total Sustainability Disclosure* Camel Rating System	(-) Sig	(-) Sig
Economic Disclosure*Camel Rating System	(-) Not Sig	(+) Sig
Social Disclosure*Camel Rating System	(-) Sig	(+) Sig
Environmental Disclosure *Camel Rating System	(-) Sig	(+) Sig
Green Disclosure* Camel Rating System	(-) Not Sig	(+) Sig

Table 11. Summary of Moderation Effect

This finding implies that a firm's financial performance, as indicated in Table 11, cannot be improved by the bank's camel rating system for social disclosure and environmental disclosure. The earning capacity of a camel rating takes into account both the quantity and trend of earnings as well as any potential negative influences on long-term sustainability. Poor management may cause loan losses, which would necessitate a larger loan allowance or increase market risks. Therefore, erratic healthy earnings have a negative impact on the viability of banking organizations. As a result, they gave the association between social and environmental disclosure and ROA a negative moderate rating. However, it has no effect on the connection between financial performance and green disclosure (*p*-Value >.005 Table 8).

As shown in Table 11, Camel rating system negatively (-13.017 Table 8) affects the relationship between sustainability disclosure and a firm's operational performance. However, as shown in Table 11, when the components of sustainability disclosure are considered separately, Camel Rating System positively affected the relationship between economic (2.789) ((*p*-Value = 0.07)) Table8) and social disclosure [(15.192) (*p*-Value = 0.000) Table 8] and a firm's operational performance (ROE). This result supports that green finance is to promote environmental protection by using various financial instruments and environmental risk factors should be included when making financing decisions to provide a more comprehensive explanation of sustainable financing. Commercial banks should take advantage of their resource allocation ability and guide the sustainable development of the economy and society through various credit policies and means of deployment. On the other hand, Camel rating system also positively moderate on the relationship between environmental [(8.144) (*p*-Value=.0003) Table 8)] and green disclosure [(6.879) (*p*-Value 0.016) Table 8]and operational performance (ROE). Since the camel rating system examines the comprehensive situation of the bank, the framework of the camel rating system can provide a comprehensive evaluation of the competitiveness of the bank. The CAMELS system has added an easy-to-quantify green indicator that reflects the bank's environmental impact.

Conclusion

Disclosures about issues outside of the regulatory standards' mandated obligations typically have little effect on profits. While sustainability reporting highlights areas of new interest in financial accounting that may eventually become significant variables that influence performance measures of companies, stakeholders are still interested in learning about trading activities and valuation measures of items in the financial statement. Sustainability Reporting provides a framework to create value for stakeholders which translates to satisfying the interest of diverse group of stakeholders. In order to fulfill the interests of stakeholders, sustainability reporting offers a framework for creating value for stakeholders. Stakeholder theory serves as the foundation for this work since it promotes the idea that managers should run a business in a way that benefits all stakeholders. This is in line with the legitimacy theory, which stresses that

organizations constantly work to ensure that they operate within the constraints, norms, and expectations of their societies. As a result, a business should maintain its survival and continuity by voluntarily disclosing specific information to stakeholders to demonstrate that it is a good citizen.

The findings demonstrate that a company's operational performance is adversely impacted by the disclosure of sustainability reporting (ROE). However, when the elements of sustainability disclosure are taken into account separately, it improves a company's operational performance (ROE). The financial performance of a company is unaffected by sustainability reporting disclosure, on the other hand (ROA). The findings also indicate that the camel grading system's inclusion as a moderator variable has a detrimental impact on the association between overall sustainability disclosure and a firm's financial and operational performance. However, when the components of total sustainability disclosure are considered separately, camel rating system has a positive effect on the relationship between Economic, Social, Environmental and Green disclosure and firm's operational performance (ROE). On the other hand, the result shows that the inclusion of camel rating system as moderator variable does not affect the relationship between total sustainability disclosure and a firm's financial performance except social and environmental disclosure has negative effect on ROA. The significance of the findings is that it investigates the moderating impact of a camel rating system on the relationship between sustainability reporting and company performance, going beyond the scope of previous studies. In terms of novelty, we highlight that Camel ratings are based on five criteria, the majority of which are related to bank performance. As a result, the primary objective of this study was to examine how these five integrated camel rating criteria affect bank performance, which in turn contributes to sustainability disclosure.

First, overall, the findings imply a negative correlation between total sustainability disclosure and both financial and operational performance. Our findings could be quite perplexing to managers of various banks. Therefore, based on the findings, we offer our recommendations for separate sustainability disclosure in order to assist policy makers, managers, stakeholders, and investors in making judgments about the sustainability disclosure strategy. Second, to take advantage of the environmental challenges and increase profitability, the operating environment of the businesses should be thoroughly studied, and policies to handle variables like economic, social, environmental, and green issues should be advanced. Third, companies should make sure that all sustainability reporting requirements are strictly followed. To increase the firm's profitability, all costs incurred during business transactions should be accurately disclosed in the financial statements. Fourth**,** while Bangladeshi banks have only recently started to reap the rewards of operating sustainably, they are still far behind in allocating their spare resources to the development of more sustainable goods and services, particularly when comparing government-owned banks to privately-owned ones. Transparency is another problem that is proving to be difficult. Even though Bangladesh Bank and well-known international organizations like GRI have provided precise instructions on how to report effectively, banks are not being honest in their sustainability reporting. We confer that banks currently disclose their sustainability activities in their annual reports in an integrated manner that does not adhere to any national or international standards and uses language and disclosure patterns that are very different from one another. As a result, the advantages are not as readily obvious as they ought to be. Because of this, the industry has yet to fully realize the advantages of sustainability. Fifth these findings are complex, diverse, and challenging to comprehend from a pedagogical perspective. We anticipate that these findings will motivate academics in the field of business to

include courses on sustainability reporting in their curricula. Sustainability reporting is largely neglected, according to reviews of accounting and business programs offered by higher education institutions worldwide.

Future studies might employ a combination of methodologies (quantitative and qualitative). Understanding the motivations behind sustainable initiatives may be improved by supplementing the analysis of secondary data with certain primary sources, such as manager interviews. Examining the impacts of environmental and social risk management policies on Bangladesh's banking industry will require more investigation. Additionally, more research is required to establish whether banks are encouraged to engage in more sustainable ventures if sustainability performance is improving steadily. Employing environmental, financial, and economic issues, research using big data techniques will further assist in making holistic conclusion. Given that Bangladeshi banks do not currently offer any direct green banking products and services, another potential future research direction based on the findings of this study could be to examine the need for core green banking products and services in the social and economic context of Bangladesh. Once, more information is available, future research should concentrate on examining the impact (positive/steady/negative) of the current legislation and the efficiency with which the banks are functioning under the green regulations. By providing verified knowledge will serve to increase understanding of the current economic crisis and cast some light on the lack of awareness. To this end, we conclude that the dynamics of the corporate sustainability reporting and company performance interactions (and its disclosure) study remains unclear due to the numerous indirect relationships of several endogenous variables that could influence such relations.

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