**Factors Affecting Risk Disclosure: Evidence from a Developing Country**

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**Abstract**

*Effective risk disclosure practices have emerged as a critical benchmark to maintain transparency and implant the confidence of stakeholders in the banking sector, particularly in emerging markets like Bangladesh.* *Despite having regulatory endeavors to promote risk disclosure practices, a noteworthy gap exists in understanding the risk disclosure factors. No prior studies considered the importance of environmental social risk disclosures. This study investigates the factors influencing risk disclosure among the listed banks in Bangladesh to solve these significant gaps. The study sample comprises 30 publicly listed banks on the Dhaka Stock Exchange from 2019 to 2021. The study employs the content analysis method to construct a risk disclosure index where a total of 60 items are taken from the nine broad categories named Accounting policies, Derivatives and Hedging, Financial instrument risk, Operational Risk, Strategic Risk, Environmental and Social Risk, Capital structure and Adequacy, Reserve Risk & Compliance Risk. Panel data Regression analysis is also used to examine the effect of board composition ownership characteristics on the level of risk disclosure practices. The study finds that board size, board independence, and firm size are positively related to risk disclosure at a significant level. However, sponsor ownership and leverage are negatively related to risk disclosure significantly. The study's findings suggest that regulators should improve the corporate attributes in their banking system by optimizing ownership characteristics and board composition to promote transparency and risk disclosure at a greater level.*

**Keywords:** risk disclosure, listed banks, ownership characteristics, board composition, factor.

**INTRODUCTION**

The significance of risk disclosure was exercised by the Institute of Chartered Accountants in England and Wales for the first time in 1998 by publishing a discussion paper named "Financial Reporting of Risk-Proposals for a Statement of Business Risk." & this paper also revealed the importance of disclosing Risk-related information in their annual report for the first time. Afterward, many researchers have preferred to work on risk disclosure, which has been proven in the study of Grassa et al. (2021a), Barakat and Hussainey (2013), and Elghaffar et al. (2019). They also proved in their studies that risk disclosure is responsible for improving corporate risk management. They also showed the association of attributes related to corporate governance with the risk disclosure practices for financial and non-financial institutions.

From the perspective of business, there is an argument that risk disclosure practices of corporations help to reduce the cost capital by gaining the stakeholder's confidence because through disclosing more Risk-related information, the uncertainty of the business operation to investors can be reduced at a greater level. Agency, stakeholder, and signaling theories examine the risk disclosure practices that cause information asymmetry between agents and shareholders (Murayr, 2023; Rouf & Siddique, 2023). By disclosing Risk-related information about the corporation, this problem can be resolved.

Risk reporting standards have been considered a critical risk disclosure benchmark over the last few years. The climate of a risky business is responsible for the risky climate of investment. As a result, investors and other stakeholders, to reduce inherent Risk, demand more Risk related information in an annual report to properly assess the uncertainties and risks arising from the organization's future cash flow and results related to the operation. The results of Risk reporting ensure transparency and inflate stakeholder confidence, which is beneficial for the firm's market performance (Linsley & Shrives, 2006).

Banks are considered highly regulated institutions because they deal with people's money due to their contribution to the nation's financial system and economic growth. The capital market helps the banking industry to perform lending activities directly and indirectly. Most of the nation recently used a fractional reserve banking system where the bank holds liquid assets proportionately to current liability (Kabir & Sobhani, 2017). According to the Basel Accords, the banking industry additionally ensures liquidity by maintaining a minimum capital requirement. The importance of banks is prominent because banks ensure the safety of people's money; people also can get loans from these financial institutions at a cheaper rate.

More recently, various international regulatory bodies like FASB and IASB have taken some effective initiatives to enhance the extent of risk disclosure (Hellman et al., 2018). Despite the importance of risk disclosure worldwide, Bangladeshi banks are still not interested in disclosing risk-related information like accounting policy risks, environmental and social risks, and derivative and hedging risks from a broader perspective.

There is an argument that risk disclosure levels vary according to development and developed countries because of their socio-economic and institutional settings. Compared to developed countries, developing countries are more economically vulnerable; for this, developing countries can benefit by imposing international disclosure standards (Nahar et al., 2016).

Most studies have shown factors affecting risk disclosure, such as bank, ownership, and audit characteristics (Elghaffar et al., 2019; Grassa et al., 2021b). However, none of the studies showed the risk disclosure practices affecting risk disclosure in a single report, and none separately showed the banks' environmental and social risk disclosure practices.

The study's main objective is to examine the factors affecting the risk disclosure of Bangladesh's listed banks. The study is conducted for the period of 2019, 2020 & 2021. A total of 30 listed banks under DSC were taken as samples for the study. The risk disclosure index is used for the study, which consists of 60 items under nine broad heads mentioned in the appendix section. The unweighted content analysis measures the calculated risk disclosure score and shows the impact of factors on risk disclosure. Multiple regression analysis is also used. Various statistical analyses are mentioned in the structure of the report section to check the model's validity.

Very few studies have been conducted on risk disclosure in the context of developing countries. Very few studies have been conducted on the determinants of risk disclosure in Bangladesh's banking industry. Also, maximum studies of risk disclosure were done in the non-financial sector in developed countries, which is proved in the literature section of the study of Al-Maghzom et al. (2016). Considering these issues, the study concludes that Bangladesh's banking industry should be examined to examine risk disclosure factors. For examination, I collected data from the annual reports of listed banks because they can be compared more easily, and both qualitative and quantitative data were used for the study. In the future, this study will help add value to the current deficient literature and aid policymakers and regulators in encouraging the banking industry to disclose risk information, which will help stakeholders make improved decisions. This study will also assist in conducting further studies to deal with the research gap by taking more samples of recent items included in the risk disclosure index.

**Theoretical Framework**

Various theories can be explained which effect on a firm's voluntary information disclosure related to risks. Prior research on risk disclosure has concentrated on information asymmetry, employing several premises from agency, signaling, and stakeholder theories.

**Agency theory:** According to Shleifer and Vishny (1986), Ownership structure affects the perceptions of Risk-taking. Shareholders with diversified portfolios generally have more power and influence in decisions regarding the direction of risks. On the other hand, risk-averse managers are focusing on their interests. Depending on this theory, the hypothesis is developed to determine the factors affecting risk disclosure in an emerging country because the practices of risk disclosure rely on institutional and monitoring characteristics of the economy (Lang & Lundholm, 1996; Wallace & Naser, 1995).

**Signaling theory:** Numerous studies have employed signaling theory to elucidate the rationale for managers' motivation to disclose additional information in annual reports (Al-Shammari, 2014; Hassan, 2009; Linsley & Shrives, 2006). This hypothesis posits that managers are inclined to reveal sufficient information in annual reports to communicate specific signals to key clients. This study employs this theory to elucidate the potential variances in the risk disclosure levels of the sampled institutions.

**Stakeholder theory:** According to Madrigal et al. (2015), Risk-related information has a meaningful impact on the risk disclosure level disclosed by risker firms. The demand for this information is very significant to investors and creditors.

**LITERATURE REVIEW**

Several literatures attempt to explain firms' motives for disclosing risk-related information in annual reports. Several studies have examined the factors affecting developed and developing economy risk disclosure.

According to Elbannan & Elbannan (2015), risk disclosure means any qualitative or quantitative information regarding the uncertainty of an economic entity published in their annual report. Risk disclosure refers to any information related to any opportunity, prospect, hazard, harm, danger, exposure, or threat affecting the company or possibly affecting it in the future (Linsley & Shrives, 2006).

According to Kabir and Sobhani (2017), the quality of risk disclosure is inferior in Bangladesh. They found the result based on the risk disclosure index consisting of 43 items under seven categories: accounting policies, derivatives hedging, financial other Risks, general risks, financial instruments, reserves, and segment information. As a sample, 15 banks were chosen by the authors from 2009 to 2013. The potential cost of improving risk disclosure is the main obstacle to voluntary risk disclosure. Managers who cannot disclose bad news on time may cause reputational costs (Skinner, 1994).

Empirical analysis of Al-Maghzom et al. (2016) showed that Islamic banks report less risk disclosure. For findings, the authors used data from 24 banks in Saudi Arabia from 2009 to 2013. Two types of risk disclosure indexes are used for analysis: one is for Islamic banks, and the other one is for non-Islamic banks. The study used the content analysis method for empirical analysis.

According to the Basel Committee on Banking Supervision (2001), transparency disclosures in the banking sector are important, as shown in a paper released by the Basel Committee on Banking Supervision; transparency stems from good disclosure. This system would help the market create a mechanism by which banks with a subpar risk profile would be sanctioned automatically. The Basel Committee on Banking Supervision (2004) paper encouraged banks to increase disclosure with more details.

According to Konishi and Ali (2007), the sample firms disclosed more good news than bad or neutral news. The result was found based on the factors influencing risk disclosure levels in 100 non-financial listed Japanese firms. The content analysis method was used to determine the extent of risk disclosure. Using the content analysis method, Linsley and Shrives (2005) found that strategic, integrity, and financial risks are the most prominent. They also explained the minimal exposure of quantified risks incorporated in the general statement in risk policy.

In the study of Arman and Arefin (2019), the authors stated that risk disclosure of sampled 100 non-financial Malaysian firms is very low compared to the study of Linsley and Shrives (2006). The authors used the sentence counting system for the exposure of risk disclosure and the stakeholder theory for connecting the attributes of corporations to the risk disclosure amount.

Implementing IAS/IFRS ensured a better flow of risk disclosure, but transparency in the Portuguese banking sector is still not guaranteed (Oliveira et al., 2011). Larger companies are more likely to disclose risk-related information in their section of narratives (Elzahar & Hussainey, 2012). They illustrated the findings by analyzing 72 non-financial companies situated in the UK. Risk disclosures are limited to some extent in the context of Bahraini firms (Mousa & Elamir, 2013).

**Table 1. Summary Table of Selected Literature Review**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Study** | **Sample** | **Period** | **Method** | **Dependent** **variables** | **Independent****variables** | **Findings** |
| Elghaffar et al. (2019) | 28 registered banks in Egypt. | 2010-2017 | General least squares | Level of risk disclosure | Bank size, profitability, leverage, liquidity, board size, board of director independence, duality role, audit committee size, institution ownership, auditor type, bank social responsibility, competition, Bad news. | A positive and significant correlation was identified between risk disclosure and board independence, board size, audit committee size, duality, institutional ownership, and auditor type. Leverage, adverse news, and social duty negatively correlate with risk disclosure. |
| Grassa et al. (2021a) | Seventy-two Islamic banks and ninety-seven conventional banks throughout eleven countries: Bahrain, Indonesia, Jordan, Kuwait, Malaysia, Pakistan, Qatar, Saudi Arabia, Tunisia, Egypt, Turkey, and the UAE. | 2009-2014 | Ordinary least square | Risk related disclosure | The number of block holders, foreign ownership percentage, board dimensions, board independence, presence of foreign directors, return on assets, leverage ratio, bank size, bank age, and publicly listed bank. | Islamic banks provide less transparency than conventional banks. Blockholders, foreign ownership, and board size are inversely correlated with RRD. A positive correlation exists between board independence and the presence of foreign directors. |
| (Tan et al., 2017) |  | 2010-2014 | Baseline regression | Nonperforming loan rate | Bank of disclosures, government ownership, non-sponsor ownership, capital adequacy ratio, inefficiency, advances to total assets, Tier 1 | An inverse relationship exists between the bank disclosure index, non-sponsor ownership, advances to total assets, and non-performing loans. Government ownership, capital adequacy ratio, and tier 1 positively relate to non-performing loan rates. |
| Nahar et al. (2016) | 30 listed banks in Bangladesh | 2007-2012 | Pooled ordinary least square | Risk disclosure index | Count of risk committees, debt-to-equity ratio, natural logarithm of total assets, risk management unit, board size, kind of audit firm. | The determinants of risk disclosure differ based on the types of Risk, the number of risk committees, leverage, the existence of a risk management unit, board size, and affiliation with a Big Four auditor, all of which are key determinants in at least one area of risk disclosure. |
| Alkurdi et al. (2019) | 15 listed Jordanian banks | 2008-2015 | Ordinary least square | Risk Disclosure | Board dimensions, independent directors, management equity, separation, audit committee convenings, leverage, financial institution size, growth, profitability. | Corporate governance attributes have a significant positive relationship with voluntary risk disclosure, except for managerial ownership. However, in the case of mandatory risk disclosure, independent director and audit committee size are positively related. |
| Barakat and Hussainey (2013) | 71 Islamic banks across 12 countries | 2009-2014 | GLS & GMM transformed multiple regression | Risk Disclosure | Profit-sharing investments, non-profit-sharing investments, number of blockholders, largest shareholders, foreign ownership, government ownership, return on assets, leverage, bank size, age, listed banks, COUTRANSDEX, GDP, AAOIFI. | The degree of disclosure diminishes as ownership concentration increases, but it is positively correlated with profit-sharing investments, foreign ownership, bank size, age, GDP, and AAOIFI. |

**(Developed by author)**

From the above past literature review studies, it can be figured out that different types of banks from all over the world are engaged in disclosing risk information, with some banks disclosing more information and some banks disclosing less information. In past studies, authors also showed the determinants of risk disclosure for different types of organizations. The study determines factors affecting the risk disclosure of listed banks in Bangladesh.

**Hypothesis Development**

Board Size, Board independence, Female board members, Sponsor ownership, Institutional ownership, and foreign ownership are the study's independent variables. The following hypotheses are needed to be tested for the study.

**Board Size and Risk Disclosure**

Most studies have shown an association between board size and risk disclosure. Elghaffar et al. (2019) found a positive significant association between board size and risk disclosure in Egyptian banks. Alkurdi et al. (2019) concluded that larger Jordanian firms are more interested in disclosing voluntary risk disclosure. A negative association has been found between board size and the risk disclosure level in the study of Roa and Jirra (2017). Based on this argument, the following hypothesis is tested:

***H1: There is a positive significant association between board size and risk disclosure.***

**Board Independence and Risk Disclosure**

The existence of independent directors on the board assists in reducing agency problems and also helps to reduce the cost associated with this problem. Most studies consider this variable an important factor that impacts risk disclosure, especially in the banking sector. Alkurdi et al. (2019) found a significant positive association between board independence and risk disclosure in the case of both voluntary and mandatory risk disclosure. The same result was found in the study of Elghaffar et al. (2019) and Barakat and Hussainey (2013). A negative association between these two variables was also found in the study of Elgammal et al. (2018). Based on this argument, the following hypothesis is tested:

***H2: There is a significant positive association between board independence and risk disclosure.***

**Female Board Member and Risk Disclosure**

Most studies found a positive and significant association between women on board and risk disclosure. This result is consistent with the studies of Khandelwal et al. (2020). A positive and significant association is found between women on board and risk disclosure in Italian-listed state-owned enterprises in the study of Allini et al. (2016). The negative association between these variables is also found in the study of Allini et al. (2014). Based on this argument, the following hypothesis is tested:

***H3: There is an association between female board members and risk disclosure***.

**Sponsor Ownership and Risk Disclosure**

Sponsor owners hold the largest share of the firms. Agency theory impacts risk disclosure in the presence of sponsor ownership. Barakat and Hussainey (2013) found a significant negative association between sponsor ownership and risk disclosure. The following hypothesis is tested below:

***H4: There is a negative significant association between sponsor ownership and risk disclosure***.

**Institutional Ownership and Risk Disclosure**

Institutional ownership plays an important role in disclosing more Risk-related information. The positive and significant association between sponsor ownership and risk disclosure is found in the study of Oliveira et al. (2011) and Elghaffar et al. (2019). According to Barakat and Hussainey (2013), ownership concentration and risk disclosure have a negative association. Based on the argument, the following hypothesis is tested:

***H5: There is a positive association between institutional ownership and risk disclosure.***

**Foreign Ownership and Risk Disclosure**

Foreign owners are more sophisticated than other investors because they have more advanced knowledge of trading and regulation of the financial market; thus, the existence of foreign owners helps to increase the risk disclosure level. The positive and significant relationship between foreign owners and risk disclosure is found in the study of Albitar et al. (2020). An insignificant association was also found between risk disclosure and foreign ownership in the study of Mousa and Elamir (2013). So, the empirical findings of these variables are mixed. The following hypothesis is tested based on the argument:

***H6: There is an association between foreign ownership and risk disclosure.***

**MATERIALS AND METHODS**

**Sampling**

The banking industry of Bangladesh has been selected for this study due to its prospective orientation. The sample comprises 30 publicly traded banks on the Dhaka Stock Exchange. Three listed banks have been omitted from the sample size due to the absence of information and the unavailability of the recent annual report. The final sample consists of the remaining 30 banks, yielding a total of 90 bank-year observations across three years from 2019 to 2021. The data from the yearly reports is utilized to implement a scoring method that indicates "1" or "0" based on the presence of an item in the risk disclosure index. The data for this study is primarily sourced from the annual reports of the individual institutions. A total of 60 items from the RD index, disclosed by the banks, have been identified for risk disclosure practices over the specified period. Additionally, these items are utilized for statistical analysis and model validity, including descriptive statistics, regression, correlation, multicollinearity, and heteroscedasticity, using financial data obtained from the financial statements of the sample banks. The appendix section contains a list of 30 sample banks.

**Data Collection**

The secondary data is sourced from the DSE website, Lanka Bangla Finance Ltd., the annual reports of 30 listed businesses, Bangladesh Bank regulations and guidelines, the Guideline on Environmental and Social Risk Management for Banks and Financial Institutions, and the respective company websites. Secondary data is utilized for regression and correlation analyses. Financial data are collected for descriptive statistical analysis, including regression and correlation analyses. Data is collected from different sources, including the DSE website, annual reports, financial statements, and Lanka Bangla Finance Ltd.

**Measurement of Variables**

**Dependent Variable – Risk Disclosure Index**

With an unweighted disclosure approach, each item's inclusion or non-availability will be measured as a dichotomous variable. This method gives a score of 1 when the company talks about a sure thing at least once and a score of 0 otherwise. In the study, I prepared an index of 60 items categorized into nine subheads. From them, the items under the following heads named accounting policies, derivatives, and hedging items, financial instrument risk, operational Risk, Strategic Risk, reserve risk, capital structure, and adequacy are consistent with the help of Grassa et al. (2021b), Bangladesh bank regulations and Guideline & other previous studies those are mentioned in the appendix section. Environmental and social risk items are self-constructed and taken from banks and financial institutions' Guidelines on environmental and social risk management (2017). Compliance risk items consist of the help of Bangladesh Bank (2017) and Lipunga (2014). I have labeled risk disclosure statements as RD scores, including quantitative and qualitative information. Here, the maximum score is 60, indicating that the company's annual report provides all the necessary information on the designed risk disclosure index. The calculated score of RD is measured by dividing the score achieved by the total maximum score. The items included in the risk disclosure index are in the appendix.

**Table 2. Operational definitions of the variables used**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Types** | **Category** | **Variable's name** | **Measurement of variable** | **Reference** |
| **Dependent variable** |  | Risk Disclosure (RD) | The ratio of total items a corporation reveals to the total items in the risk disclosure index.  | (Elghaffar et al., 2019) |
| **Independent variables** | Board composition | Board Size (BSIZE) | The number of board members | (Elghaffar et al., 2019) |
| Board Independence (BIND) | Number of independent directors on the board | (Elghaffar et al., 2019) |
| Female board member (BFEM) | Number of female board members | (Jahid et al., 2020) |
| Ownership structure | Sponsor ownership (SPOWNER) | Percentage of shares held by the sponsor | (Albitar et al., 2020) |
| Institutional ownership (INSTOWNER) | Percentage of shares held by institution | (Elghaffar et al., 2019) |
| Foreign ownership (FOROWNER) | Percentage of shares held by foreign owner | (Albitar et al., 2020) |
| **Control variables** | Firm characteristics | Firm Size (FSIZE) | Natural logarithm of total assets | (Elghaffar et al., 2019) |
| Leverage (LEV) | Total debt /Total equity | (Nahar et al., 2016) |
| Profitability (ROE) | Net income after tax/ Total equity | (Jahid et al., 2020) |

**Model Specification**

The study's primary objective is to identify the factors influencing risk disclosure and the degree of compliance with risk disclosure within the Bangladeshi banking sector. Ordinary least squares (OLS) regression has been performed using STATA software with the following model to achieve this objective.

**RD= α + β1****BSIZEit +** **β2BINDit + β3BFEMit + β4SPOWNERit + β5INSTOWNERit +**

**β6FOROWNERit + β7FSIZEi t+ β8LEVit + β9ROEit + εit**

In this context, i denotes an individual firm, while t signifies a particular year.

RD denotes the computed score of the risk disclosure index.

BSIZE denotes the total number of board members.
BIND denotes the number of independent directors on the board.

BFEM denotes the total size of female board members.

SPOWNER denotes the Percentage of shares owned by the sponsor.

INSTOWNER denotes the proportion of shares controlled by an institution.

FOROWNER refers to the Percentage of shares held by a foreign owner.

FSIZE refers to the natural logarithm of total assets.

LEV refers to the ratio of total liabilities to the total equity.

ROE refers to the ratio of net income to the total asset.

**RESULTS AND DISCUSSIONS**

**Descriptive Analysis**

The table below presents the descriptive statistics for the dependent and independent variables utilized in the investigation. This table displays the observations, mean, standard deviation, minimum, and maximum of the observed variables from 2019 to 2021, encompassing 90 firm years. Here, the dependent variable is RD, which represents the risk disclosure score of the sample banks and other variables considered independent variables.

**Table 12. Consequences of Descriptive Statistics**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  **Variable**  | **Obs** | **Mean** | **Std. Dev.**  | **Min** | **Max** |
| RD | 90 | .7487037 | .0931227 | .4666667 | .9333333 |
| BSIZE | 90 | 2.550079 | .3360565 | 1.791759 | 3.044522 |
| BIND | 90 | .1897851 | .0834916 | .0625 | .6 |
| BFEM | 90 | .134117 | .0981108 | 0 | .3333333 |
| SPOWNER | 90 | 37.961 | 15.07931 | 0 | 86.99 |
| INSTOWNER | 90 | 21.86289 | 10.38477 | 3.8 | 49.51 |
| FOR OWNER | 90 | 3.574333 | 7.982585 | 0 | 43.48 |
| FSIZE | 90 | 26.5623 | .7325245 | 23.14276 | 28.12368 |
| LEV | 90 | 14.452 | 5.890835 | -1.988199 | 37.6218 |
| ROE | 90 | .0986693 | .0464275 | .0051269 | .2614861 |

The data indicates that the sample banks have reported approximately 75% of the risk disclosure items, with a standard deviation of around 9.31%. The maximum score for the risk disclosure index is 93%, while the minimum Percentage of items declared by the institutions is 47%. The descriptive statistics indicate that the average board size is approximately 3, with a standard deviation of 34%. The smallest board size is 1.79, while the largest is 3.04. The study indicates that 18.98% of directors on the board are independent, with a standard deviation of 8.35%. The board's independence varies between 6.25% and 60%. The average Percentage of female directors on the board is approximately 13.41%, with a standard deviation of 9.8%. The proportion of female directors on the board varies from 0% to 33.33%. The average proportion of shares held by sponsor directors is approximately 37.96, with a standard deviation 15.08. The shareholding proportion ranges from 0 to 87. The table indicates that, on average, institutional owners hold approximately 21.86% of shares, with a standard deviation of 10.39. The value of institutional ownership varies between 3.8 and 49.51. The mean value of foreign shareholders is 3.57, indicating minimal foreign directors' shareholding in the banking sector. The standard deviation is 8, and the proportion of shares held by foreign directors ranges from 0 to 43.48. The mean firm size is 26.56, calculated using the natural logarithm of total assets, with a standard deviation of 73.25%. It signifies that there is substantial variety in the large and small banks. The banks' average leverage is 14.45, which implies that their assets are moderately financed by external debt. The standard deviation is 5.89, with some banks employing a minimal leverage of -1.988 while others utilize a significantly high leverage of 37.62. The average profitability (ROE) is 9.87%, which is relatively low, with a standard deviation of 4.6%. ROE varies from 0.51% to 26.15%.

**Correlation Analysis**

The linear relationship between two variables is known as correlation. This study uses the Pearson correlation matrix to examine the relationship between independent variables. The following table represents the correlation matrix that shows relationships among the variables.

**Table 13. Results of Correlation Matrix**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | B SIZE | BIND | BFEM | SPOWNER | INSTOWNER | FOROWNER | FSIZE | LEV | ROE |
| BSIZE | 1.0000 |  |  |  |  |  |  |  |  |
| BIND | **-0.3898**\*\*\* | 1.0000 |  |  |  |  |  |  |  |
| BFEM | **-0.3302**\*\*\* | **0.3200**\*\*\* | 1.0000 |  |  |  |  |  |  |
| SPOWNER | -0.0551 | **0.2612**\*\* | -0.0109 | 1.0000 |  |  |  |  |  |
| INSTOWNER | 0.0648 | **-0.2123**\*\* | 0.1714 | **-0.2687**\*\*\* | 1.0000 |  |  |  |  |
| FOROWNER | -0.0485 | **0.5902**\*\*\* | 0.0447 | 0.0748 | **-0.2886**\*\*\* | 1.0000 |  |  |  |
| FSIZE | **0.3129**\*\*\* | 0.1118 | **-0.2495**\*\* | -0.1586 | -0.0513 | **0.2587**\*\* | 1.0000 |  |  |
| LEV | 0.1686 | -0.1096 | **-0.2024**\* | **-0.3063**\*\*\* | -0.1459 | -0.0323 | **0.6269\*** | 1.0000 |  |
| ROE | 0.1035 | 0.0186 | 0.1612 | **0.3229\*\*\*** | -0.1140 | -0.0033 | 0.1147 | 0.0375 | 1.0000 |

(\*, \*\*, and \*\*\* indicate significance at 10, 5 and 1% levels, respectively)

According to the correlation results, board size is negatively correlated with board independence, female board members, sponsor ownership, and foreign ownership but positively correlated with institutional ownership, firm size, leverage, and return on equity. The relationship between board independence, female board members, and firm size is significant at a 1%. Board independence positively correlated with female board members, foreign ownership at a 1% significance level, and institutional ownership sponsor ownership at a 5% significant level but found an insignificant positive relationship with firm size and return on equity. Board independence is negatively correlated with leverage, but the relationship is insignificant. Board female size negatively correlated with firm size leverage at a 5% significance level and 10% significance level, respectively, but a negative relationship with sponsor ownership was found to be insignificant. Board female size positively correlated with return on equity, institutional ownership, and foreign ownership, but the relationship is insignificant. Sponsor ownership negatively correlated with institutional ownership leverage at a 1% significance level and positively correlated with return on equity at a 1% significance level. The relationship between foreign ownership and firm size is found to be insignificant. Institutional ownership negatively correlated with foreign ownership at a 1% significance level and negatively correlated with firm size, leverage, and return on equity, but it was insignificant. Foreign ownership positively correlated with firm size at a 5% significant level. The relationship between return on equity and leverage is negative but insignificant. The relationship between firm size leverage is positive at a 10% significant level, but the relationship between firm size and return on equity is insignificant. Leverage positively correlates with return on equity, but the relationship is insignificant. Since the correlation coefficients of all variables are below 0.70, it can be inferred that there is no multicollinearity issue within the dataset (Arif et al., 2021).

**Regression Analysis**

**Table 14. Result of Regression Analysis**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  **RD** | **Coef.** | **Std. Err.** | **t** |  **P>|t|**  |
|  BSIZE | .0519087 | .031149 | 1.67 | 0.100\* |
|  BIND | .321062 | .159837 | 2.01 | 0.048\*\* |
|  BFEM | -.0423482 | .1067918 | -0.40 | 0.693 |
|  SPOWNER | -.0012222 | .0007084 | -1.73 | 0.088\* |
|  INSTOWNER | .0008256 | .0009634 | 0.86 | 0.394 |
|  FOROWNER | -.0017882 | .0014679 | -1.22 | 0.227 |
|  FSIZE | .0707523 | .0180158 | 3.93 | 0.000\*\*\* |
|  LEV | -.0072439 | .0021053 | -3.44 | 0.001\*\*\* |
|  ROE | .1566024 | .2090998 | 0.75 | 0.456 |
|  \_cons | -1.194292 | .4346131 | -2.75 | 0.007 |
| **R-squared**= 0.33 | **Adj R-squared**= 0.26 | **Number of obs**= 90 | **F**= 4.40 | **Prob>F=**0.0001 |

(Level of significance are at 1%\*\*\*, 5%\*\* & 10%\*)

The regression result illustrates a positive relationship between risk disclosure (RD) and board size ( BSIZE) at a 10% significance level. This study indicates that Bangladeshi banks with larger boards are more inclined to adhere to risk disclosure requirements. This outcome aligns with earlier research findings (Elghaffar et al., 2019; Said Mokhtar & Mellett, 2013). A positive and substantial correlation was identified between board independence (BIND) and the computed score of RD at a 5% significance level, aligning with previous research findings of Elghaffar et al. (2019) and Barakat and Hussainey (2013). This result illustrates that the more independent board members are more motivated to disclose risk disclosure information. The relationship between female board members (BFEM) and risk disclosure is negative but found insignificant. So overall, it can be said that board characteristics significantly impact the risk disclosure of Bangladesh's banking industry. Sponsor ownership (SPOWNER) has a significant negative relationship with risk disclosure, which indicates that the risk disclosure increases with fewer shares held by the sponsor, and the result is also similar to a previous study by Albitar et al. (2020). Relationships with institutional ownership (INSTOWNER) and foreign ownership (FOROWNER) with risk disclosure are insignificant in the study. Among the control variables, firm size (FSIZE) positively correlates with risk disclosure at a 1% significance level. This implies that larger banks disclose more risk-related information than small banks because larger banks are more capable of bearing the excess expense of disclosing more Risk-related information. This result is consistent with other studies (Albitar et al., 2020; Aksu & Kosedag, 2006). Leverage(LEV) has a significant negative relationship with risk disclosure at a 1% significance level, which is also consistent with the result of prior studies( Elghaffar et al., 2019; Albitar et al., 2020). The result implies that banks with higher leverage tend to disclose less Risk-related information because this could create a negative signal for the stakeholders. Profitability (ROE) is not significantly related to risk disclosure & This result is also consistent with the study of Samaha et al. (2012) and Elghaffar et al. (2019).

F statistics represents the value of 4.40 with a significant p-value (0.001), implying that the model is good and well-fitting. R-squared is used to measure the association between the dependent and independent variables. The value of R square is 0.33, which indicates that independent and control variables explain 33% of the dependent variable.

**Model Validity**

***Checking of Multicollinearity***

**Table 15. Results of Multicollinearity**

|  |  |  |
| --- | --- | --- |
|  **Variable** | **VIF** | **1/VIF**  |
|  BIND | 2.46 | 0.407038 |
|  FSIZE | 2.40 | 0.416222 |
|  LEV | 2.12 | 0.471308 |
|  FOROWNER | 1.89 | 0.527961 |
|  SPOWNER | 1.57 | 0.635321 |
|  BFEM | 1.51 | 0.660335 |
|  BSIZE | 1.51 | 0.661550 |
|  INSTOWNER | 1.38 | 0.724177 |
|  ROE | 1.30 | 0.769159 |
|  **Mean VIF** | **1.80** |  |

Field (2005) states that multicollinearity arises when a substantial correlation exists between two or more independent variables. The multicollinearity assessment of the dataset indicates no issues regarding the relationships among independent variables, as both the average VIF and specific VIF remain below the threshold of 10 (Gujarati & Porter, 2009; Hair et al., 2006).

**Checking of** **Heteroscedasticity**

**Table 16. Results of Heteroscedasticity**

|  |  |
| --- | --- |
|   chi2(1)  |  0.17 |
|  Prob > chi2 | 0.6786 |

The Breusch-Pagan test assessed the equality of residual variance across a spectrum of measured values. A P value below the 0.05 threshold indicates the presence of heteroscedasticity. However, the observed P value of 0.68 exceeds this threshold, suggesting no heteroscedasticity issue. Therefore, it can be concluded that the dataset is homoscedastic.

**CONCLUSIONS**

The study's primary purpose is to determine the factors affecting risk disclosure over 2019, 2020, and 2021. The sample consists of 30 listed banks under DSC. The risk disclosure index has been developed with the help of prior studies and other sources like Bangladesh bank regulations guidelines and Guidelines on the environment and social risk management for banks and financial institutions to calculate risk disclosure scores. A total of 60 items are taken on 9 broad categories (Accounting policies, Derivatives, and Hedging, Financial instrument risk, Operational Risk, Strategic Risk, Environmental and Social Risk Capital structure and Adequacy, Reserve Risk, and compliance risk) are used to develop the index. Ordinary least square regression is used to sort out the factors responsible for the level of compliance with risk disclosure. A total of 9 attributes: Board Size (BSIZE), Board independence (BIND), Female board member (BFEM), Sponsor ownership (SPOWNER), Institutional ownership (INSTOWNER), Foreign ownership (FOROWNER), Firm Size (FSIZE), Leverage (LEV), Profitability (ROE) have been used as factors of risk disclosure. A positive significant association between board size, board independence, and firm size with risk disclosure has been found. Negative significant associations have been found between institutional ownership leverage and risk disclosure. The result matches the findings of the previous studies mentioned in the analysis and findings section. The remaining factors (return on equity, female board members, foreign & institutional ownership) are not significantly related to risk disclosure—no Heteroscedasticity multicollinearity was found in the model, which ensures the model validity of the study.

The limiting factors of the study are that it will be conducted only on the banking industry for three years in the context of Bangladesh because of time constraints and the dearth of material. The limited sample size can limit the generalizability of the findings. This study does not cover all corporate governance characteristics, such as audit committee characteristics. The study's shortcomings highlight the possibility of further study covering the above shortcomings.

## REFERENCES

Aksu, M., & Kosedag, A. (2006). Transparency and disclosure scores and their determinants in the Istanbul Stock Exchange. *Corporate Governance: An International Review, 14*(4), 277–296. <https://doi.org/10.1111/j.1467-8683.2006.00507.x>

Albitar, K., Hussainey, K., Kolade, N., & Gerged, A. M. (2020). ESG disclosure and firm performance before and after IR: The moderating role of governance mechanisms. *International Journal of Accounting & Information Management, 28*(3), 429–444.

Alkurdi, A., Hussainey, K., Tahat, Y., & Aladwan, M. (2019). The impact of corporate governance on risk disclosure: Jordanian evidence. *Academy of Accounting and Financial Studies Journal, 23*(1). <https://www.abacademies.org/articles/the-impact-of-corporate-governance-on-risk-disclosure-jordanian-evidence-7886.html>

Allini, A., Manes Rossi, F., & Hussainey, K. (2016). The board's role in risk disclosure: An exploratory study of Italian listed state-owned enterprises. *Public Money & Management, 36*(2), 113–120. <https://doi.org/10.1080/09540962.2016.1118935>

Allini, A., Manes Rossi, F., & Macchioni, R. (2014). Do corporate governance characteristics affect non-financial risk disclosure in government-owned companies?: The Italian experience. *Financial Reporting: Bilancio, Controlli e Comunicazione d'Azienda, 1*, 5–31.

Al-Maghzom, A., Hussainey, K., & Aly, D. (2016). The level of risk disclosure in listed banks: Evidence from Saudi Arabia. *Corporate Ownership and Control, 14*(1), 175–194. <https://doi.org/10.22495/cocv14i1c1p2>

Al-Shammari, B. (2014). Kuwait corporate characteristics and level of risk disclosure: A content analysis approach. *Journal of Contemporary Issues in Business Research, 3*(3), 128–153.

Arif, M., Sajjad, A., Farooq, S., Abrar, M., & Joyo, A. S. (2021). The impact of audit committee attributes on the quality and quantity of environmental, social, and governance (ESG) disclosures. *Corporate Governance: The International Journal of Business in Society, 21*(3), 497–514. <https://doi.org/10.1108/CG-06-2020-0243>

Arman, M., & Arefin, A. (2019). Assessing the Risk of insolvency: An empirical analysis using Altman Z-score bankruptcy model. In *International Conference on Management and Information Systems* (Vol. 29, p. 30).

Bangladesh Bank. (2017). *Guidelines on environmental social risk management (ESRM) for banks and financial institutions in Bangladesh*. <https://www.bb.org.bd/aboutus/regulationguideline/esrm_guideline_feb2017.pdf>

Barakat, A., & Hussainey, K. (2013). Bank governance, regulation, supervision, and risk reporting: Evidence from operational risk disclosures in European banks. *International Review of Financial Analysis, 30*, 254–273. <https://doi.org/10.1016/j.irfa.2013.07.002>

Basel Committee on Banking Supervision. (2001). *Principles for sound liquidity risk management and supervision*.

Basel Committee on Banking Supervision. (2004). *International convergence of capital measurement and capital standards: A revised framework*. Basel: BIS.

Elbannan, M. A., & Elbannan, M. A. (2015). Economic consequences of bank disclosure in the financial statements before and during the financial crisis: Evidence from Egypt. *Journal of Accounting, Auditing & Finance, 30*(2), 181–217. <https://doi.org/10.1177/0148558X14552723>

Elgammal, M. M., Hussainey, K., & Ahmed, F. (2018). Corporate governance and voluntary Risk and forward-looking disclosures. *Journal of Applied Accounting Research, 19*(4), 592–607. <https://doi.org/10.1108/JAAR-01-2017-0014>

Elghaffar, E. S. A., Abotalib, A. M., & Khalil, M. A. A. M. (2019). Determining factors that affect risk disclosure level in Egyptian banks. *Banks & Bank Systems, 14*(1), 159–171.

Elzahar, H., & Hussainey, K. (2012). Determinants of narrative risk disclosures in UK interim reports. *The Journal of Risk Finance, 13*(2), 133–147. <https://doi.org/10.1108/15265941211203189>

Field, A. (2005). *Reliability analysis*. In A. Field, *Discovering statistics using SPSS* (2nd ed., Chap. 15). Sage.

Grassa, R., Moumen, N., & Hussainey, K. (2021a). Do ownership structures affect risk disclosure in Islamic banks? International evidence. *Journal of Financial Reporting and Accounting, 19*(3), 369–391. <https://doi.org/10.1108/JFRA-02-2020-0036>

Grassa, R., Moumen, N., & Hussainey, K. (2021b). What drives risk disclosure in Islamic and conventional banks? An international comparison. *International Journal of Finance & Economics, 26*(4), 6338–6361. <https://doi.org/10.1002/ijfe.2122>

Gujarati, D. N., & Porter, D. C. (2009). *Basic econometrics* (5th ed.). McGraw-Hill.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (6th ed.). Pearson Education.

Hassan, M. K. (2009). UAE corporations‐specific characteristics and level of risk disclosure. *Managerial Auditing Journal, 24*(7), 668–687. <https://doi.org/10.1108/02686900910975378>

Hellman, N., Carenys, J., & Moya Gutierrez, S. (2018). Introducing more IFRS principles of disclosure – Will the poor disclosers improve? *Accounting in Europe, 15*(2), 242–321. <https://doi.org/10.1080/17449480.2018.1476772>

Jahid, M. A., Rashid, M. H. U., Hossain, S. Z., Haryono, S., & Jatmiko, B. (2020). Impact of corporate governance mechanisms on corporate social responsibility disclosure of publicly-listed banks in Bangladesh. *The Journal of Asian Finance, Economics and Business, 7*(6), 61–71. <https://doi.org/10.13106/jafeb.2020.vol7.no6.061>

Kabir, M. R., & Sobhani, F. A. (2017). Risk disclosures in bank's annual report: Bangladesh perspective. *Australian Academy of Accounting and Financial Review, 3*, 11–20.

Khandelwal, C., Kumar, S., Madhavan, V., & Pandey, N. (2020). Do board characteristics impact corporate risk disclosures? The Indian experience. *Journal of Business Research, 121*, 103–111. <https://doi.org/10.1016/j.jbusres.2020.08.004>

Konishi, N., & Ali, M. M. (2007). Risk reporting of Japanese companies and its association with corporate characteristics. *International Journal of Accounting, Auditing and Performance Evaluation, 4*(3), 263–285. <https://doi.org/10.1504/IJAAPE.2007.016281>

Lang, M. H., & Lundholm, R. J. (1996). Corporate disclosure policy and analyst behavior. *Accounting Review, 71*(4), 467–492.

Linsley, P. M., & Shrives, P. J. (2005). Examining Risk reporting in UK public companies. *The Journal of Risk Finance, 6*(4), 292–305.

Linsley, P. M., & Shrives, P. J. (2006). Risk reporting: A study of risk disclosures in the annual reports of UK companies. *The British Accounting Review, 38*(4), 387–404.

Lipunga, A. M. (2014). Corporate governance practices in commercial banking sector of Malawi: Evidence from annual reports. *Journal of Applied Finance and Banking, 4*(5), 115.

Madrigal, M. H., Guzmán, B. A., & Guzmán, C. A. (2015). Determinants of corporate risk disclosure in large Spanish companies: A snapshot. *Contaduría y Administración, 60*(4), 757–775. <https://doi.org/10.1016/j.cya.2015.05.014>

Mousa, G., & Elamir, E. (2013). Content analysis of corporate risk disclosures: The case of Bahraini capital market. *Global Review of Accounting and Finance, 4*(1), 27–54.

Murayr, A. A. (2023). *Impact of corporate board structure and international financial reporting standards on voluntary risk disclosure and firm value: The case of Saudi Arabian listed companies* [Doctoral dissertation, Victoria University]. <https://vuir.vu.edu.au/id/eprint/47244>

Nahar, S., Azim, M., & Jubb, C. A. (2016). Risk disclosure, cost of capital, and bank performance. *International Journal of Accounting & Information Management, 24*(4), 476–494.

Oliveira, J., Lima Rodrigues, L., & Craig, R. (2011). Voluntary risk reporting to enhance institutional and organizational legitimacy: Evidence from Portuguese banks. *Journal of Financial Regulation and Compliance, 19*(3), 271–289.

Roa, K. S., & Jirra, T. D. (2017). Analysis of risk disclosure practices of commercial banks in Ethiopia. *Indian Journal of Research, 6*(2), 260–262.

Rouf, M. A., & Siddique, M. N. E. A. (2023). Theories applied in corporate voluntary disclosure: A literature review. *Journal of Entrepreneurship and Public Policy, 12*(1), 49–68. <https://doi.org/10.1108/JEPP-01-2022-0007>

Said Mokhtar, E., & Mellett, H. (2013). Competition, corporate governance, ownership structure, and risk reporting. *Managerial Auditing Journal, 28*(9), 838–865. <https://doi.org/10.1108/MAJ-11-2012-0776>

Samaha, K., Dahawy, K., Hussainey, K., & Stapleton, P. (2012). The extent of corporate governance disclosure and its determinants in a developing market: The case of Egypt. *Advances in Accounting, 28*(1), 168–178. <https://doi.org/10.1016/j.adiac.2011.12.001>

Shleifer, A., & Vishny, R. W. (1986). Large shareholders and corporate control. *Journal of Political Economy, 94*(3), 461–488.

Skinner, D. J. (1994). Why firms voluntarily disclose bad news. *Journal of Accounting Research, 32*(1), 38–60. <https://www.jstor.org/stable/2491386>

Tan, Y., Zeng, C. C., & Elshandidy, T. (2017). Risk disclosures, international orientation, and share price informativeness: Evidence from China. *Journal of International Accounting, Auditing and Taxation, 29*, 81–102. <https://doi.org/10.1016/j.intaccaudtax.2017.08.002>

Wallace, R. O., & Naser, K. (1995). Firm-specific determinants of the comprehensiveness of mandatory disclosure in the corporate annual reports of firms listed on the stock exchange of Hong Kong. *Journal of Accounting and Public Policy, 14*(4), 311–368.