



FACTORS AFFECTING RISK DISCLOSURE: EVIDENCE FROM A DEVELOPING COUNTRY



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ABSTRACT

Risk disclosure has become an essential mechanism for enhancing transparency, reducing information asymmetry, and strengthening stakeholder confidence in the banking industry. Despite continuous regulator efforts to improve disclosure practices, limited evidence exists regarding the determinants of risk disclosure in developing economies, particularly Bangladesh. Moreover, previous studies have largely overlooked environmental and social risk disclosures when evaluating overall risk reporting practices. This study investigates the factors affecting the level of risk disclosure among listed commercial banks in Bangladesh. The study employs a balanced panel dataset comprising 30 banks listed on the Dhaka Stock Exchange over the 2019–2021 period, resulting in 90 bank-year observations. A content analysis approach is used to construct a Risk Disclosure Index comprising 60 disclosure items, classified into nine 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. Ordinary Least Square (OLS) panel regression is employed to examine the influence of board composition, ownership structure, and firm-specific characteristics on risk disclosure. The descriptive results indicate that the average risk disclosure score is 74.87%, with a range of 46.67% to 93.33%. The regression model explains 33% of the variation in risk disclosure ($R^2 = 0.33$) and is statistically significant ($F = 4.40, p < 0.001$). The results reveal that board size ($\beta = 0.0519, p < 0.10$), board independence ($\beta = 0.3211, p < 0.05$), and firm size ($\beta = 0.0708, p < 0.01$) are positively associated with risk disclosure. In contrast, sponsor ownership ($\beta = -0.0012, p < 0.10$) and leverage ($\beta = -0.0072, p < 0.01$) exhibit significant negative associations. In contrast, female board representation, institutional ownership, foreign ownership, and profitability are not significantly associated with the extent of risk disclosure.

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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. Afterwards, many researchers have preferred to focus on risk disclosure, as demonstrated by the studies of Grassa et al. (2021a), Barakat and Hussainey (2013), and Elghaffar et al. (2019). They also demonstrated in their studies that risk disclosure improves corporate risk management. They also showed the association between attributes related to corporate governance and risk disclosure practices across financial and non-financial institutions.

From a business perspective, there is an argument that corporate risk disclosure practices help reduce capital costs by building stakeholder confidence. By disclosing more Risk-related information, the uncertainty of business operations for investors can be reduced further. Agency, stakeholder, and signalling 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 benchmark for risk disclosure over the last few years. The climate of a risky business is responsible for the investment climate. 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 organisation's future cash flows and operations. The results of Risk reporting ensure transparency and inflate stakeholder confidence, which is beneficial for the firm's market performance (Linsley & Shrivs, 2006).

Banks are highly regulated institutions because they handle people's money, which contributes to the nation's financial system and economic growth. The capital market helps the banking industry perform lending activities, both directly and indirectly. Most of the nation recently used a fractional-reserve banking system, in which banks hold liquid

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assets in proportion to their current liabilities (Kabir & Sobhani, 2017). According to the Basel Accords, the banking industry also ensures liquidity by maintaining minimum capital requirements. Banks are important because they ensure the safety of people's money and allow people to get loans at lower rates.

More recently, various international regulatory bodies, such as the FASB and IASB, have taken effective initiatives to enhance the extent of risk disclosure (Hellman et al., 2018). Despite the importance of risk disclosure worldwide, Bangladeshi banks remain uninterested in disclosing risk-related information, such as 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 across developed and developing countries due to their socio-economic and institutional settings. Compared to developed countries, developing countries are more economically vulnerable; for this reason, they can benefit from 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 how risk disclosure practices affected risk disclosure in a single report, and none separately examined banks' environmental and social risk disclosure practices.

Very few studies have been conducted on risk disclosure in developing countries. Very few studies have examined the determinants of risk disclosure in Bangladesh's banking industry. Also, most studies of risk disclosure were conducted in the non-financial sector in developed countries, as shown in the literature review 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, we collected data from the annual reports of listed banks, which could be compared more easily, and used both qualitative and quantitative data in the study. In the future, this study will help address the current deficiencies in the literature and aid policymakers and regulators in encouraging the banking industry to disclose risk information, thereby helping stakeholders make better decisions. This study will also assist in conducting further research to address the research gap by taking additional samples of recent items included in the risk disclosure index.

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 selected as the study sample. The risk disclosure index used in the study comprises 60 items under nine broad heads, as listed in the appendix. 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 described in the report's structure to assess the model's validity.

LITERATURE REVIEW

Various theories can be explained that affect that affect a firm's voluntary information disclosure regarding risks. Prior research on risk disclosure has focused on information asymmetry, drawing on several premises from agency, signalling, and stakeholder theories.

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

Numerous studies have employed signalling theory to elucidate the rationale for managers' motivation to disclose additional information in annual reports (Al-Shammari, 2014; Hassan, 2009; Linsley & Shives, 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.

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

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

According to Elbannan & Elbannan (2015), risk disclosure means any qualitative or quantitative information regarding the uncertainty of an economic entity published in its 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 & Shives, 2006).

According to Kabir and Sobhani (2017), the quality of risk disclosure in Bangladesh is inferior. 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. For example, the authors selected 15 banks from 2009 to 2013. The potential cost of improving risk disclosure is the main obstacle to voluntary risk disclosure. Managers who fail to disclose bad news on time may incur reputational costs (Skinner, 1994). An empirical analysis by Al-Maghzom et al. (2016) showed that Islamic banks disclose less risk. For findings, the authors used data from 24 banks in Saudi Arabia from 2009 to 2013. Two risk disclosure index types are used for analysis: one for Islamic banks and the other for non-Islamic banks. The study used content analysis as its empirical method.

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. Transparency stems from good disclosure. This system would help the market create a mechanism for automatically sanctioning banks with a subpar risk profile. The Basel Committee on Banking Supervision (2004) paper encouraged banks to increase disclosure by providing more detail.

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 Shrides (2005) found that strategic, integrity, and financial risks are the most prominent. They also explained the minimal exposure to quantified risks incorporated into the general risk policy statement.

In the study by Arman and Arefin (2019), the authors stated that risk disclosure among 100 sampled non-financial Malaysian firms is very low compared to that reported in the study by Linsley and Shrides (2006). The authors used the sentence-counting system to assess risk disclosure and the stakeholder theory to link corporate attributes to the amount of risk disclosure.

Implementing IAS/IFRS improved the flow of risk disclosures, but transparency in the Portuguese banking sector remains insufficient (Oliveira et al., 2011). Larger companies are more likely to disclose risk-related information in their narrative sections (Elzahar & Hussainey, 2012). They illustrated the findings by analysing 72 non-financial companies situated in the UK. Risk disclosures are limited to some extent for 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 squares	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	Non performing 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 capital are positively associated with non-performing loan rates.
Nahar et al. (2016)	30 listed banks in Bangladesh	2007-2012	Pooled ordinary least squares	Risk disclosure index	Count of risk committees, debt-to-equity ratio, natural logarithm of total assets, risk management unit, board size, and kind of audit firm.	The determinants of risk disclosure differ by risk type, the number of risk committees, leverage, the presence 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 squares	Risk Disclosure	Board dimensions, independent directors, management equity, separation, audit committee convenings, leverage, financial institution size, growth, and 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, the size of the independent director and audit committee is positively related.

Barakat and Hussainey (2013)	71 banks across 12 countries	Islamic across	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, COUTRANSDX, 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.
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Source: Developed by the author

From the above literature review, it can be seen that banks worldwide are disclosing risk information, with some disclosing more and others less. In past studies, authors also identified the determinants of risk disclosure across different types of organisations. The study determines factors affecting the risk disclosure of listed banks in Bangladesh.

Board Size, Board independence, Female board members, Sponsor ownership, Institutional ownership, and foreign ownership are the study's independent variables.

Most studies have shown an association between board size and risk disclosure. Elghaffar et al. (2019) found a positive and significant association between board size and risk disclosure in Egyptian banks. Alkurdi et al. (2019) concluded that larger Jordanian firms are more interested in voluntary risk disclosure. A negative association between board size and risk disclosure was found in the study by Roa and Jirra (2017).

The presence of independent directors on the board helps reduce agency problems and their associated costs. 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, both voluntary and mandatory. 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).

Most studies found a positive, significant association between women on boards 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 boards and risk disclosure in Italian-listed state-owned enterprises in the study by Allini et al. (2016). The negative association between these variables is also found in the study of Allini et al. (2014).

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.

Institutional ownership plays an important role in disclosing more Risk-related information. The positive and significant association between sponsor ownership and risk disclosure is reported in the studies by Oliveira et al. (2011) and Elghaffar et al. (2019). According to Barakat and Hussainey (2013), ownership concentration and risk disclosure are negatively associated.

Foreign owners are more sophisticated than other investors because they have more advanced knowledge of trading and financial market regulation; thus, their presence helps increase risk disclosure levels. A positive and significant relationship between foreign ownership and risk disclosure is found in the study by Albitar et al. (2020). An insignificant association was also found between risk disclosure and foreign ownership in the study of Mousa and Elamir (2013). The empirical findings for these variables are mixed.

This study aims to examine the key factors influencing the extent of risk disclosure by listed banks in Bangladesh. The following are the hypotheses of the study:

- H₁:** There is a significantly positive association between board size and risk disclosure.
- H₂:** There is a significant positive association between board independence and risk disclosure.
- H₃:** There is an association between female board members and risk disclosure.
- H₄:** There is a significantly negative association between sponsor ownership and risk disclosure.
- H₅:** There is a positive association between institutional ownership and risk disclosure.
- H₆:** There is an association between foreign ownership and risk disclosure.

MATERIALS AND METHODS

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 due to insufficient information and the unavailability of their recent annual reports. The final sample comprises the remaining 30 banks, yielding a total of 90 bank-year observations across 2019 to 2021. Data from the yearly reports is used to implement a scoring method that assigns "1" or "0" based on whether an item is present in the risk disclosure index. The data for this study are 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 utilised 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 lists 30 sample banks.

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 utilised 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.

With an unweighted disclosure approach, each item's inclusion or non-availability will be measured as a dichotomous variable. This method assigns a score of 1 if the company mentions a sure thing at least once, and 0 otherwise. In the study, we prepared an index of 60 items, organised into 9 subheadings. 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 guidelines & other previous studies as 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 are based on the work of Bangladesh Bank (2017) and Lipunga (2014). We have labelled 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 RD score is calculated by dividing the achieved score 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 a 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
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 a foreign owner	(Albitar et al., 2020)
Control variables		Firm characteristics	Firm Size (FSIZE)	Natural logarithm of total assets
	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 it in the Bangladeshi banking sector. Ordinary least squares (OLS) regression was performed in Stata using the following model to achieve this objective.

$$RD = \alpha + \beta_1 BSIZE_{it} + \beta_2 BIND_{it} + \beta_3 BFEM_{it} + \beta_4 SPOWNER_{it} + \beta_5 INSTOWNER_{it} + \beta_6 FOROWNER_{it} + \beta_7 FSIZE_{it} + \beta_8 LEV_{it} + \beta_9 ROE_{it} + \epsilon_{it}$$

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 total equity.

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

RESULTS AND DISCUSSIONS

Descriptive Analysis

The table below presents the descriptive statistics for the dependent and independent variables utilised 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 for the sample banks, and the other variables are considered independent.

Table 3. 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 indicate 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 board directors are independent, with a standard deviation of 8.35%. The board's independence ranges from 6.25% to 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 of 15.08. The shareholding range is 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 ranges from 3.8 to 49.51. The mean foreign shareholders' shareholding is 3.57, indicating minimal foreign director 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 indicates substantial variation among 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 minimal leverage of -1.988 while others using 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 a Pearson correlation matrix to examine relationships among independent variables. The following table presents the correlation matrix, which shows relationships among the variables.

Table 4. Results of Correlation Matrix

Items	B SIZE	BIND	BFEM	SPOWNER	INSTOWNER	FORO WNER	FSIZE	LEV	ROE
B SIZE	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 the 1% level. Board independence was positively correlated with female board members and with foreign ownership at the 1% significance level, and with sponsor ownership at the 5% significance level. Still, it showed 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 was negatively correlated with firm size leverage at the 5% and 10% significance levels, respectively, but the negative relationship with sponsor ownership was insignificant. Board female size

is positively correlated with return on equity, institutional ownership, and foreign ownership, but the relationships are insignificant. Sponsor ownership was negatively correlated with institutional ownership leverage at the 1% significance level and positively correlated with return on equity at the 1% significance level. The relationship between foreign ownership and firm size is found to be insignificant. Institutional ownership was negatively correlated with foreign ownership at the 1% significance level and with firm size, leverage, and return on equity, but these correlations were insignificant. Foreign ownership was positively correlated with firm size at the 5% significance level. The relationship between return on equity and leverage is negative but insignificant. The relationship between firm size and 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 for all variables are below 0.70, it can be inferred that there is no multicollinearity in the dataset (Arif et al., 2021).

Regression Analysis

Table 5. Result of Regression Analysis

RD	Coef.	Std. Err.	t	P> t
BFSIZE	.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 results indicate a positive relationship between risk disclosure (RD) and board size (BFSIZE) at the 10% significance level. This study indicates that Bangladeshi banks with larger boards are more likely to comply with 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 RD score at the 5% significance level, consistent with previous research by Elghaffar et al. (2019) and Barakat and Hussainey (2013). This result illustrates that the more independent board members are, the more motivated they are to disclose risk disclosure information. The relationship between female board members (BFEM) and risk disclosure is negative but found insignificant. Overall, board characteristics significantly affect risk disclosure in Bangladesh's banking industry. Sponsor ownership (SPOWNER) has a significant negative relationship with risk disclosure, indicating that risk disclosure increases with fewer shares held by the sponsor, and this result is 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 they are better able to bear the additional costs 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 the 1% significance level, consistent with 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 send a negative signal to stakeholders. Profitability (ROE) is not significantly related to risk disclosure & this result is consistent with the studies by Samaha et al. (2012) and Elghaffar et al. (2019).

The F-statistic is 4.40, with a significant p-value (0.001), indicating that the model is well-fitting. R-squared measures the association between the dependent and independent variables. The R-square value is 0.33, indicating that the independent and control variables explain 33% of the dependent variable.

Model Validity

Checking for Multicollinearity

Table 6. 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
BFSIZE	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 there is a substantial correlation between two or more independent variables. The multicollinearity assessment of the dataset indicates no issues with relationships among independent variables, as both the average and specific VIFs remain below the threshold of 10 (Gujarati & Porter, 2009; Hair et al., 2006).

Checking for Heteroscedasticity

Table 7. Results of Heteroscedasticity

chi2(1)	0.17
Prob > chi2	0.6786

The Breusch-Pagan test assessed whether the residual variance was equal across a range of measured values. A P-value below 0.05 indicates heteroscedasticity. However, the observed P-value of 0.68 exceeds this threshold, suggesting no heteroscedasticity. Therefore, 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, such as Bangladesh Bank regulations, guidelines, and the 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 from 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) to develop the index. Ordinary least squares 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 significant positive 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 or multicollinearity was found in the model, ensuring its validity in the study.

The study's limitations are that it will be conducted only on the banking industry in Bangladesh for 3 years due to time constraints and limited 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 need for further research to address the above issues.

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