



Article

# Financial Risk Disclosure and Financial Attributes among Publicly Traded Manufacturing Companies: Evidence from Bangladesh

Ripon Kumar Dey <sup>1</sup>, Syed Zabid Hossain <sup>2</sup> and Zabihollah Rezaee <sup>3,\*</sup>

<sup>1</sup> Institute of Bangladesh Studies, University of Rajshahi, Rajshahi 6205, Bangladesh; rkdibsr@gmail.com

<sup>2</sup> Department of Accounting and Information Systems, University of Rajshahi, Rajshahi 6205, Bangladesh; syed6205@gmail.com

<sup>3</sup> School of Accountancy, Fogelman College of Business and Economics, The University of Memphis, Memphis, TN 38152, USA

\* Correspondence: zrezaee@memphis.edu; Tel.: +1-901-678-4652

Received: 30 July 2018; Accepted: 15 August 2018; Published: 20 August 2018



**Abstract:** We explore the relationship between the degree of financial risk disclosure and a firm's financial attributes. Financial risk disclosure indices (FRDIs) are calculated based on a set of 30 disclosure identifiers through content analysis of the annual reports of 48 manufacturing companies over a six-year period (2010–2015) in Bangladesh. We find no common practice among the companies in disclosing financial risk by integrating a customized financial risk disclosure into their financial reporting process. The results indicate that firm size, financial performance, and auditor type are positively and significantly associated with the level of financial risk disclosure.

**Keywords:** financial risk; annual report; developing countries; financial attributes; Bangladesh

## 1. Introduction

Risk disclosure is information that describes firms' major risks and their expected economic impact on their current and future performance (Miihkinen 2010). The 2007–2009 global financial crises have significantly raised concerns about the aggressive risk taking of public companies, research interest in risk management, and disclosure around the world and triggered regulatory reforms from various government agencies and accounting standard setters (Dobler 2005; Rezaee 2016). Prior research (e.g., Linsley and Shrivs 2006; Abraham and Cox 2007; Linsley and Lawrence 2007; Hasan et al. 2008) states that corporate risk disclosure has become an integral part of business disclosure because it provides greater transparency and increases investors' confidence in the context of developed countries and markets. The Dodd–Frank Act (DOF) of 2010 requires large financial institutions in the United States to have a board-level risk committee that oversees the assessment, management, and disclosure of financial risks (Dodd–Frank Wall Street Reform and Consumer Protection Act 2010). Aliabadi et al. (2013) find that the adoption of enterprise risk management (ERM) in assessing and disclosing risk reduces the risk-taking behavior of management. Prior research (e.g., Beasley et al. 2008; Pagach and Warr 2007) finds that firms with financial challenges and stock price volatility are more likely to adopt ERM and disclose their financial risk. However, the empirical evidence on financial risk disclosure in the context of developing countries is rare. As a result, this study attempts to bridge this gap by examining corporate financial risk disclosure in an emerging economy like Bangladesh.

Motivated by risk disclosure research and its inconclusive results in developed countries, we examine the association between financial risk disclosure and financial attributes in Bangladesh, one of the fast-developing markets and economies. We focus on financial risk disclosure in Bangladesh for several reasons. First, the 1996 and 2010–2011 Bangladesh stock market crashes indicate that

the traditional reporting culture fails to provide enough information to investors in making sound investment decisions (Das et al. 2015). Second, the Institute of Chartered Accountants of Bangladesh (ICAB) adopted the International Financial Reporting Standard No. 7 (IFRS-7) as Bangladesh Financial Reporting Standard (BFRS)-7 in 2010. BFRS No. 7 requires the disclosure of information relating to both recognized and unrecognized financial instruments, their significance, performance, accounting policies, terms, conditions, net fair value, and risk information, as well as company policies for controlling risk and exposure.

Third, the Bangladesh National Parliament enacted the Financial Reporting Act of 2015 (FRA) on 6 September 2015 (FRA 2015). The FRA requires the establishment of a new oversight body, referred to as the Financial Reporting Council (FRC). The main purpose of the FRC is to regulate the financial reporting procedure followed by the reporting entities. The FRA recognizes the major functions of the FRC and monitoring of financial reporting including risk assessment and management. The FRC is intended to bring a level of discipline into corporate financial reporting, and thus strengthen the safety and soundness of capital markets. From that perspective, this study could provide evidence pertaining to the efficacy of the FRA. Finally, the type and extent of risk disclosure vary and are influenced by the factors related to a given company in Bangladesh (Al-Mulhem 1997).

We posit that the degree of financial risk disclosure is positively associated with financial attributes. Our rationale for such an association is the following: (1) risk disclosure provides greater transparency and enhances investors' confidence that may lead to higher firm value; (2) leveraged firms are obliged to disclose more risk information to satisfy the needs of investors and creditors; (3) large firms are more exposed to public scrutiny than small firms, and hence they are more likely to disclose more information; (4) higher financial performance could persuade management to provide more information to demonstrate its ability to create shareholder value; and (5) liquidity risk might encourage reporting entities to enhance the extent of risk disclosure to notify shareholders that management is considering such a risk.

The theoretical intuition for our prediction of the relationship between risk disclosure and financial attributes is based on signaling theory and the institutional settings in Bangladesh. Signaling theory explains management's incentives for disclosing financial risk to differentiate its firm's risk tolerance and appetite from other firms with higher financial risk to avoid adverse selection problems (Verrecchia 1983; Ng and Rezaee 2015). The institutional settings are relevant to our study as many provisions of regulatory measures in Bangladesh specifically address management risk assessment and disclosure. For example, provisions of Section 184 of the Companies Act of 1994, Rule 12 of the Bangladesh Securities and Exchange Rules of 1987, Bangladesh Securities and Exchange Commission (BSEC), and Accounting Standards as adopted by the ICAB require that listed companies report their true and fair position to shareholders. After the adoption of IFRS-7 as BFRS-7, financial risk disclosure has been reinforced.

We use financial risk disclosure indices (FRDIs) calculated based on a set of 30 disclosure identifiers through content analysis to assess the level of financial risk disclosure in the annual reports of 48 manufacturing companies in Bangladesh over a period of six years (2010–2015). The association between the level of financial risk disclosure and firm specific characteristics has been examined using regression analyses. The content analysis of individual FRDIs shows that there is no common practice among the companies in disclosing financial risk and they treat financial risk disclosure in a heterogeneous way. However, the regression model reveals that firm size, financial performance, and auditor type are positively and significantly associated with the level of financial risk disclosure.

This study contributes to the accounting and business literature in several ways. First, this paper contributes to corporate risk disclosure literature in the Anglo-Saxon countries by using the setting of Bangladesh as a highly speculative and volatile capital market of an emerging economy. Second, this manuscript adds to relatively limited literature relating to risk disclosure in emerging economies and markets. Another contribution is the development of a risk disclosure index based on financial risk disclosure identifiers in the light of reporting standards, professional requirements, prior research, and

the regulatory framework of Bangladesh. The examination of the relationship between firm specific characteristics and the extent of financial risk disclosure not only enhances our understanding of the reasons behind the variation of the disclosure, but also assists policy makers in adopting the appropriate tools to alleviate inconsistencies. Third, this study provides policy and practical implications by finding an association between financial leverage and liquidity and the level of financial risk disclosure, which may stimulate the regulatory bodies of the country to consider it and act accordingly. Undoubtedly, the Institute of Chartered Accountants of Bangladesh (ICAB) has adopted IFRS 7 as Bangladesh Financial Reporting Standard 7 (BFRS 7) to ensure understandable, comparable, reliable, and transparent financial risk reporting for a sound, organized, and stable capital market in Bangladesh. However, empirical results document a compliance gap and suggest for full compliance of BFRS 7 without any deviation to achieve comparability and reliability in disclosing financial risk. An analysis of the link between the level of financial risk disclosure and the firm's attributes has not previously been done in the context of Bangladesh.

Fourth, we measure the level of aggregate disclosure (both mandatory and voluntary) on financial risk in the annual reports of Dhaka Stock Exchange (DSE) listed manufacturing companies in terms of financial risk indices for a period of six years from 2010 to 2015 in response to BFRS-7. Thus, this manuscript enables regulators, policy makers, and corporate managers to understand the financial risk disclosure pattern of publicly traded manufacturing companies in Bangladesh and to set an appropriate risk disclosure policy with guidelines to minimize the heterogeneous problem relating to corporate financial risk disclosure. Finally, prior related research does not directly address financial risk disclosure in emerging markets and economies.

The remainder of the paper is organized as follows: Section 2 presents the legal framework for disclosure in Bangladesh. The literature review is provided in Section 3. The theoretical framework and hypothesis development are presented in Section 4. Methodology, description of our sample, and descriptive analysis are provided in Section 5. The results and their interpretations are presented in Section 6 and the last section concludes the paper.

## 2. Legal Framework for Risk Disclosure in Bangladesh

Generally, each country has its own regulatory framework that governs corporate disclosure within the country. The corporate reports, in general, include information in accordance with reporting and disclosure requirements of the regulatory body, and as such, the reporting entity needs to provide at least the required amount of information to facilitate the evaluation of securities (Akhtaruddin 2005). In Bangladesh, the Companies Act of 1994, Securities and Exchange Rules 1987, and accounting standards adopted by ICAB provide the framework for corporate disclosure. The disclosure best practices can affect the extent of risk disclosure by listing regulations of stock exchanges (DSE and CSE—Chittagong Stock Exchange) and Income Tax Ordinance 1984. Besides, BSEC issues notifications and guidelines from time to time on different issues, which increases the level of corporate disclosure.

The Companies Act of 1994 provides the basic requirements for corporate disclosure and reporting in Bangladesh. The Act requires that the corporate financial statements must reflect the true and fair view of the reporting entity. Concomitantly, BSEC plays the leading role in monitoring and enforcing mandatory disclosure compliance of publicly traded companies. Moreover, Accounting Standards adopted by the ICAB, in addition to its own disclosure provisions, gain mandatory status through the directives of the BSEC.

## 3. Literature Review

Risk has different notions and researchers have defined risk disclosure in different ways and contexts. Basically, risk disclosure is the communication of information concerning a firm's strategies, characteristics, operations, and other external factors that have the potential to affect expected results (Beretta and Bozzolan 2004). Firms incur different types of risks to attain their

mission and aims throughout their life-cycle and management, and financial risks are among these (Lombardi et al. 2016). For our study, we have considered five categories of risks (i.e., capital structure risk, credit risk, liquidity risk, interest rate risk, and exchange risk) and the disclosure of these risks in annual reports. Several studies examine risk disclosure in developed countries including the United Kingdom (Linsley and Shrivies 2006; Abraham and Cox 2007), Italy (Beretta and Bozzolan 2004), Canada (Lajili and Zéghal 2005), and Australia (Poskitt 2005). These studies address corporate overall risk with less emphasis on financial risk. Lombardi et al. (2016) examine financial risk disclosure in the setting of Italy by addressing the commodity price risk category.

In the context of Bangladesh, there are a few studies on corporate disclosure, including Akhtaruddin (2005); Hasan et al. (2008); Hasan et al. (2013); Das et al. (2015). Specifically, Akhtaruddin (2005); Hasan et al. (2008); and Das et al. (2015) investigate corporate mandatory disclosure, whereas Hasan et al. (2013) examine financial disclosure. These studies, while finding a positive association between corporate disclosure and financial attributes for firms in Bangladesh, do not directly address financial risk disclosure. Basically, financial risk disclosure practice started in Bangladesh after the adoption of IFRS-7 by the ICAB in 2010, hence its implementation is at an early stage. We contribute to the literature by providing an initial understanding and a portrait of financial risk disclosure practice in developing countries.

#### 4. Theoretical Framework

Several theories are suggested in the accounting and finance literature in providing an explanation of the voluntary disclosure practices of business entities. The most common theories that are relevant to our research issues are the following: agency theory, signaling theory, political cost theory, capital need theory, and legitimacy theory. We briefly discussed these theories and their implications for our research because there is no specific theory perceived to explain the motivation for voluntary disclosure (Khlifi and Bouri 2010).

Agency theory can explain voluntary disclosure phenomena in many countries with a different social, political, and economic context (Ferguson et al. 2002; Akhtaruddin and Hossain 2008; Hossain and Taylor 2007). Disclosure is seen as a monitoring mechanism in agency theory. Healy and Palepu (2001) argue that demand for financial reporting and disclosure arises from information asymmetry along with agency conflicts between managers and outside investors. Prior research (Oliveira et al. 2011a, 2011b; Konishi and Ali 2007) uses firm size as a proxy for agency costs and assumes a positive association between disclosure and firm size and argues that leverage represents the agency cost between debt-holders and managers, and is thus reflected in disclosure practices.

Signaling theory also explains why companies voluntarily disclose information in their annual reports (Haniffa and Cooke 2002; Akhtaruddin and Hossain 2008). In accordance with this theory, a firm's information disclosure can be considered a signal to capital markets, directed to reduce information asymmetry that often exists between management and stakeholders, as well as to increase the firm's value (Connelly et al. 2011; Rezaee 2016).

Under political cost theory, firms with high political visibility in the market place tend to increase disclosure as a means of mitigating potential political costs. The political cost theory is usually discussed in relation to the corporate size hypothesis, in which the manager of a big corporation is more likely to select accounting procedures that defer reported earnings from current to future periods. (Milne 2002). The capital needs theory also helps explain the reasons behind companies' disclosure of voluntary information by suggesting that companies disclose more information to raise capital at the lowest cost (Core 2001). The capital needs theory predicts that increased voluntary disclosure is likely to lower the cost of capital because of the reduced uncertainty from an investor's perspective (Schuster and O'Connell 2006).

The legitimacy theory assumes that a company has no right to exist unless its values are perceived as being matched with those of the society at large in which it operates (Maigness 2006). Companies may disclose information voluntarily for improving communication with society that helps societal

people to believe that the entities are operating within the social value system. In summary, the above theories have implications for financial risk disclosure in the sense that firms should assess, manage, and disclose risk to shareholders in compliance with agency theory, disclosing management risk appetite, and risk-taking under the signaling theory, focusing on financial risk disclosure as a means of mitigating political costs and government intervention in accordance with political cost theory, and communicating risk tolerance under legitimacy theory. Although all these theories are relevant to our study, the two prevailing theories that provide the foundations for our research hypotheses, as described in the next section, are the signaling and political cost theories. The signaling theory suggests that firms have incentives to disclose their good information to the capital markets and the political cost theory explains the institutional setting in Bangladesh.

## 5. Hypothesis Development

Dodd Frank Act of 2010 (DOF) was the United States Congress' response to the 2007–2009 global financial crisis primarily caused by a lack of proper risk assessment and management (Dodd–Frank Wall Street Reform and Consumer Protection Act 2010). The DOF Act requires banks in n establishing either a risk and compliance board committee or a risk and compliance executive position. Prior research (e.g., Beasley et al. 2008; Aliabadi et al. 2013) argues that firms with financial challenges and high stock price volatility are more likely to adopt ERM in managing and disclosing their risks. Earlier empirical studies (e.g., Oliveira et al. 2011a, 2011b; Alsaeed 2006; Kamal Hassan 2009) that examined the relationship between the extent of disclosure and firm-specific attributes have shown that there are several firm characteristics that may influence the extent of disclosure in annual reports. Based upon theoretical discussion and previous empirical research on disclosure, we have selected six characteristics (firm size, financial performance, corporate financial leverage, liquidity, industry type, and auditor type) for this study to test their relationship with the extent of financial risk disclosure exclusively in the context of a developing country as there is hardly any empirical evidence on the same in literature.

### 5.1. Firm Size and Level of Financial Risk Disclosure

Prior research (Linsley and Shrives 2006; Abraham and Cox 2007; Beretta and Bozzolan 2004; Hasan et al. 2008; Das et al. 2015) suggests that firm size is an important determinant of the level of disclosure and presents mixed results regarding the link between size and the extent of disclosure. Brammer and Pavelin (2008) argue that larger firms tend to be more visible to stakeholders as they tend to be more complex, and thus are subject to more inherent risk. Agency theory also suggests that larger companies have higher information asymmetry between managers and owners, and as such, higher agency costs arise. To reduce these agency costs, larger companies disclose more information than smaller companies. Political cost theory also supports this notion. We posit that larger firms provide more financial risk disclosure and formulate the following hypothesis:

**H1.** *There is a positive association between the level of financial risk disclosure and firm size.*

### 5.2. Firm Performance and Level of Financial Risk Disclosure

Prior research (Inchausti 1997) supports the existence of a relationship between company performance and risk disclosure in light of signaling theory. However, empirical results are mixed. Some studies (Wang et al. 2008; Nandi and Ghosh 2013) find a positive association, whereas other studies (Reverte 2009; Bujaki and McConomy 2002) report an insignificant relationship between firm performance and the extent of risk disclosure. However, studies (Hasan et al. 2008) in the context of Bangladesh find insignificant association between profitability and comprehensiveness of disclosure. Thus, we formulate the following hypothesis:

**H2.** *There is a positive association between the financial performance level of a company and financial risk disclosure level.*



### 5.3. Corporate Financial Leverage and Level of Financial Risk Disclosure

The corporate financial leverage, as measured by total debt to total assets, may affect the level of financial risk disclosure. Companies with high levels of debt tend to be highly leveraged, more speculative, and riskier. Debt-holders have greater power over the financial structure of such companies. From an agency theory perspective, creditors of highly leveraged companies have strong incentives to encourage management to disclose more information. [Linsley and Shrives \(2006\)](#) argue that firms with higher levels of risk disclosure provide greater amounts of risk-related information as managers are willing to explain the causes of high risk. Thus, we formulate the following hypothesis:

**H3.** *There is a positive association between corporate financial leverage and financial risk disclosure.*

### 5.4. Liquidity and Level of Financial Risk Disclosure

[Wallace and Naser \(1995\)](#) argue that liquidity is an essential factor to disclose more information about a company's ability to meet its obligation, as well as to testify that the company is a going concern to dispel the fears of investors and creditors. According to signaling theory, a firm with a high liquidity ratio tends to disclose more information in order to be differentiated from other firms with a lower liquidity ratio. Conversely, agency theory proposes that firms with lower liquidity disclose more information to reduce conflict between shareholders and creditors. Findings of prior studies are mixed. For example, [Naser et al. \(2002\)](#) support this reasoning of agency theory, whereas other studies ([Alsaeed 2006](#); [Barako et al. 2006](#)) do not support either of these two theories by reporting no association between liquidity and financial disclosure. These contradictory results provide an incentive to test this association between liquidity and disclosure. Thus, we formulate the following hypothesis:

**H4.** *The level of liquidity is associated with the extent of financial risk disclosure.*

### 5.5. Industry Type and Level of Financial Risk Disclosure

The financial literacy level of capital market investors and participants is relatively low in Bangladesh, and thus in most cases, their source of information is only the audited annual reports of public companies, unlike in the United States with voluntary financial and non-financial information disseminated to the capital markets (e.g., management discussion and analysis, short sellers, financial analysts, institutional investors). As stated earlier, high volatility and market manipulation is a common phenomenon in Bangladesh capital markets. Thus, a standardized risk reporting format is an urgent requirement to achieve greater financial transparency and to make investors aware of the financial risks in this highly unpredictable environment. Homogeneous disclosure practices could be very helpful in this regard. Thus, the heterogeneous/varied financial risk disclosure practices of companies impedes obtaining an efficient capital market and informed assessment of the investors.

The industry type has been identified as a significant factor that influences the disclosure practices ([Amran and Haniffa 2011](#)). The signaling theory suggests a positive association between industry type and the level of risk disclosure. However, the prior empirical studies indicate mixed results, with some studies suggesting the association to be significant ([Haniffa and Cooke 2002](#)), whereas [Naser et al. \(2002\)](#) find an insignificant association between industry type and risk disclosure. Firms in the financial and chemical industries have more incentives to provide financial risk disclosure. Thus, we state the following hypothesis:

**H5.** *The industry type is associated with the extent of financial risk disclosure.*

### 5.6. Auditor Type and Level of Financial Risk Disclosure

It is reported that financial statements of firms that are audited by the Big 4 audit firms are perceived to be more credible than those audited by non-Big 4 firms ([Das et al. 2015](#)). These larger and well-known audit firms tend to encourage firms to disclose more information to safeguard the audit firms' reputation and avoid reputational costs to them ([Chalmers and Godfrey 2004](#)). [Lopes and](#)

Rodrigues (2007) find a positive relation between audit firm size and the extent of disclosure (Lopes and Rodrigues 2007). On the other hand, Deumes and Knechel (2008) report a negative association between auditor type and the extent of disclosure. The Big 4 international audit firms tend to operate in smaller capital markets through a local audit firm, and Bangladesh is one such setting where this unique alliance occurs (Kabir et al. 2011). Thus, we formulate the following hypothesis:

**H6.** *Audit firm size is associated with the extent of financial risk disclosure.*

## 6. Methodology

### 6.1. Sample

Our sample is limited to manufacturing companies for a period of six years from 2010 (Commencement year of BFRS-7) to 2015. We did not consider companies under the financial category because of their differing nature of business and type of financial statements. The listed manufacturing companies are divided into twelve industrial sectors. Six sectors (50%) from these twelve industrial sectors have been selected using a simple random sampling technique so that the results could be generalized. The selected industrial sectors are Cements, Engineering, Fuel & Power, Jute, Pharmaceuticals & Chemicals, and Tannery, which comprise 91 companies as of 31 December 2015. Out of these 91 companies, 48 (53%) companies have been selected for this study based on continuity of operation. All companies included in our sample experienced financial risks described in Table 1. Finally, our sample size is 288 (48 × 6) firm-year observations in the 2010–2015 period, as the data for 2016 and onwards were not available at the time of our analyses.

**Table 1.** Grid of risk reporting. FR—financial risk.

Category of FR	No.	Disclosure Identifier
Liquidity Risk	1	Definition or motivation
	2	Classification of debts by type and maturity
	3	Comparison with previous years
	4	Quantitative data on available cash or cash equivalents
	5	Company's approach toward managing liquidity
	6	Current ratio and quick ratio
Credit Risk	1	Definition or motivation
	2	Quantitative or qualitative data on exposure to credit risk
	3	Classification of customers' obligations in terms of their creditworthiness (rating)
	4	Aging schedule of accounts receivable
	5	Comparison with previous years
	6	Alternative credit classification (by activity, geographical area, others)
	7	Notes on the concentration of credit
Interest Rate Risk	1	Definition or motivation
	2	Classification of debt by interest rate (fixed/variable)
	3	Sensitivity analysis
	4	Information on derivative hedging instruments
Currency Risk	1	Definition or motivation
	2	Detail of items in foreign currencies
	3	Comparison with previous years
	4	Sensitivity analysis
Capital Structure Risk	1	Company's ability to continue as a going concern
	2	Leverage ratios
	3	Capital expenditure forecast (quantitative and qualitative)
	4	Forecast of growth capacity (both qualitative and quantitative)
	5	Capital expenditure commitment
	6	Long term credit rating
General	1	Financial risk management policy
	2	Information on responsibility for establishment and oversight of the risk management framework
	3	Review of risk management policies, procedures and systems To reflect changes in market conditions and the company's activities

## 6.2. Method of Analysis

The method used in this study for analyzing financial risk disclosure is content analysis, as the study is focused on the extent of financial risk disclosures and not on the quality of financial risk. Following Lombardi et al. (2016), a financial risk disclosure index is developed to ensure the reliability of inference. We use multiple regression models to assess the relationship between the level of financial risk disclosure and firm specific characteristics in testing our hypotheses.

## 6.3. Financial Risk Category Selection

We examine the sections of annual reports covering information on risks and uncertainties in the management report and notes to the financial statements on risk management of each sample company—looking exclusively at financial risks. Specifically, we focus on financial risks only and not general risks (operational, strategic, and context-related). Finally, we identify categories of financial risks for the sample firms. Accordingly, we have the following five categories of financial risk: capital structure risks, credit risks, liquidity risks, exchange risks, and interest rate risks. All five types of these financial risks were considered in the construction of the financial risk disclosure index presented in Section 6.5. For example, if a company incurred a currency risk, we included such risk in the calculation of the financial risk disclosure index (FRDI).

## 6.4. Item Selection for Financial Risk Description

After selection of categories of financial risk, we prepare a set of items or disclosure identifiers (grid risk report—GRR). Our GRR contains the most significant items for each risk category and we have chosen those items that a firm should specify to provide adequate information on that risk. To obtain a common framework that would allow us to study how and when the sample firms report on their financial risks, we consider only the most significant items that are described by a substantial number of firms, which is at least 10% of the sample companies. Accordingly, we compare all the items and give an importance rating of 10% following the study of Lombardi et al. (2016). Thus, if an item is recorded by at least 5 out of 48 companies, the item is considered significant and has been included in the general framework. At the end of this procedure, we construct our GRR, which is presented in Table 1. The number of items in each category vary as we find seven items for credit risks, six for liquidity risk, four for currency risk, four for interest rate risks, six for capital structure risk, and three for general items. Thus, the overall financial risk disclosure index is composed of a total of 30 items.

## 6.5. Financial Risk Disclosure Index

A financial risk disclosure index (FRDI) is constructed as a benchmark for measuring the level of financial risk disclosure by the listed companies. We apply our GRR model to the annual reports of the sample companies for the study period. To examine the correspondence of the revealed disclosure with the GRR items, we estimate the disclosure index for each category of financial risk and an overall financial risk disclosure index. We assign scores to each item depending on the completeness of information held in the documents. If an item is expressed in a clear and systematic way, we assign a score of 1, otherwise a score of 0 is assigned when there is no qualitative or quantitative information about the item. The score obtained (equal to the sum of scores assigned to the various items that compose the risk) is compared with the maximum score, equal to the total number of items belonging to the risk being analyzed. To estimate the disclosure index for the risk examined, we use the following formula.

$$0 \leq \text{FRDI}_j = \frac{\text{Score obtained from the } j\text{th company}}{\text{Maximum possible score}} \leq 1.$$



### 6.6. Measurement of Variables

The dependent variable of the study is financial risk disclosure and the independent variables are firm specific characteristics. The firm specific characteristics are measured in terms of the size of the company, financial performance, corporate financial leverage, liquidity, type of auditor, and the industry to which the company belongs. Table 2 presents the list of variables used in the paper and their methods of measurement.

**Table 2.** List of variables and their measurement methods. FRDI—financial risk disclosure index; FS—firm size; ROA—return on assets; FL—financial leverage; LIQD—liquidity; IT—industry type; AT—auditor type.

Name of Variables	Type of Variables	Proxies	Acronyms	Measurement
Financial Risk Disclosure	Dependent	Financial Risk Disclosure Index	FRDI	Ratio of score obtained by a company and maximum possible score
Firm Specific Characteristics	Independent	Firm Size	FS	Logarithm of Total Assets
		Financial Performance	ROA	EBIT/Total Assets
		Corporate Financial leverage	FL	Total Liabilities/Total Assets
		Liquidity	LIQD	Current Assets/Current Liabilities
		Industry Type (Dummy)	IT	1 or 0
		Auditor Type (Dummy)	AT	1 or 0

### 6.7. Model Development

Consistent with prior research (Amran and Haniffa 2011; Amran et al. 2008), we use multiple regressions to assess the variability of the extent of financial risk disclosure and its association with firm characteristics. This statistical method is widely used in previous studies. Thus, the following regression model is developed in testing our hypotheses:

$$FRDI_i = b_0 + b_1FS + b_2ROA + b_3FL + b_4LIQD + b_5CEM + b_6FP + b_7JUTE + b_8PHARM + b_9TAN + b_{10}AT + \epsilon_i$$

where

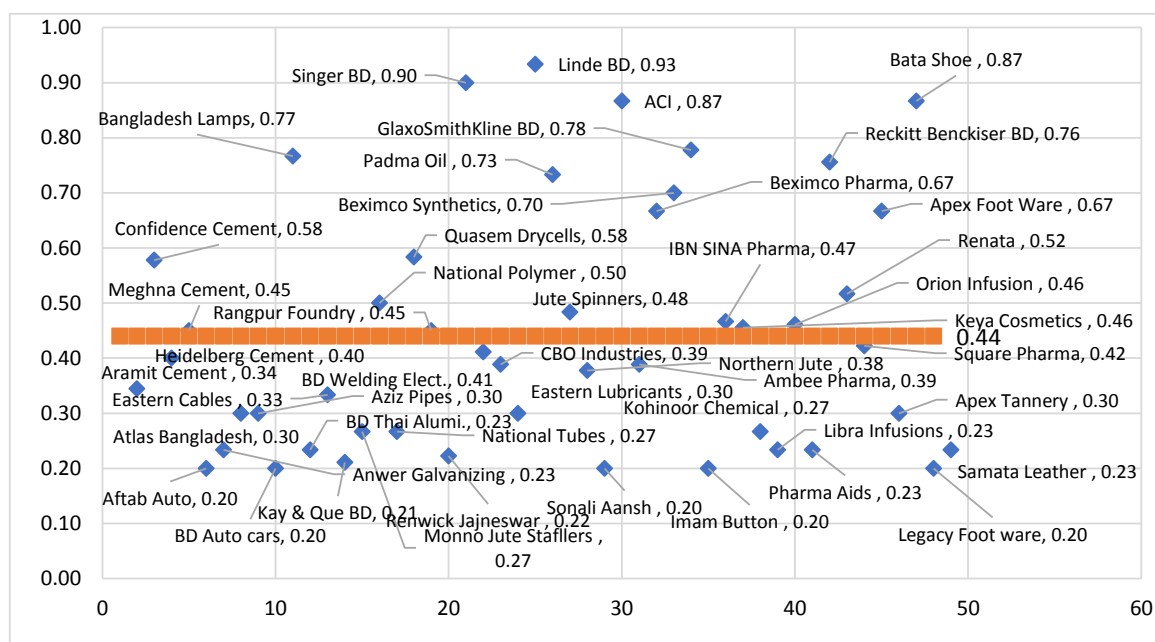
FRDI = financial risk disclosure index; FS = firm size; ROA = return on assets; FL = corporate financial leverage; LIQD = liquidity; CEM = cement industry = 1 if the company is in the cement industrial sector, otherwise 0; FP = fuel and power industry = 1 if the company is in the fuel and power industrial sector, otherwise 0; JUTE = jute industry = 1 if the company is in the jute industrial sector, otherwise 0; PHARM = pharmaceuticals and chemical industry = 1 if the company is in the pharmaceuticals and chemical industrial sector, otherwise 0; TAN = tannery industry = 1 if the company is in the tannery industrial sector, otherwise 0; AT = auditor type = 1 if audit firms link with Big 4, otherwise 0; and  $\epsilon_i$  = error terms. To reduce the impact of outliers, we winsorize all continuous variables at 1 percent and 99 percent.

## 7. Results and Discussion

### 7.1. Aggregated Disclosure Index of Financial Risks

Figure 1 shows the distribution of total disclosure indices during the study period of 2010 to 2015 for the 48 sample companies. The deep yellow line indicates the average total disclosure index of

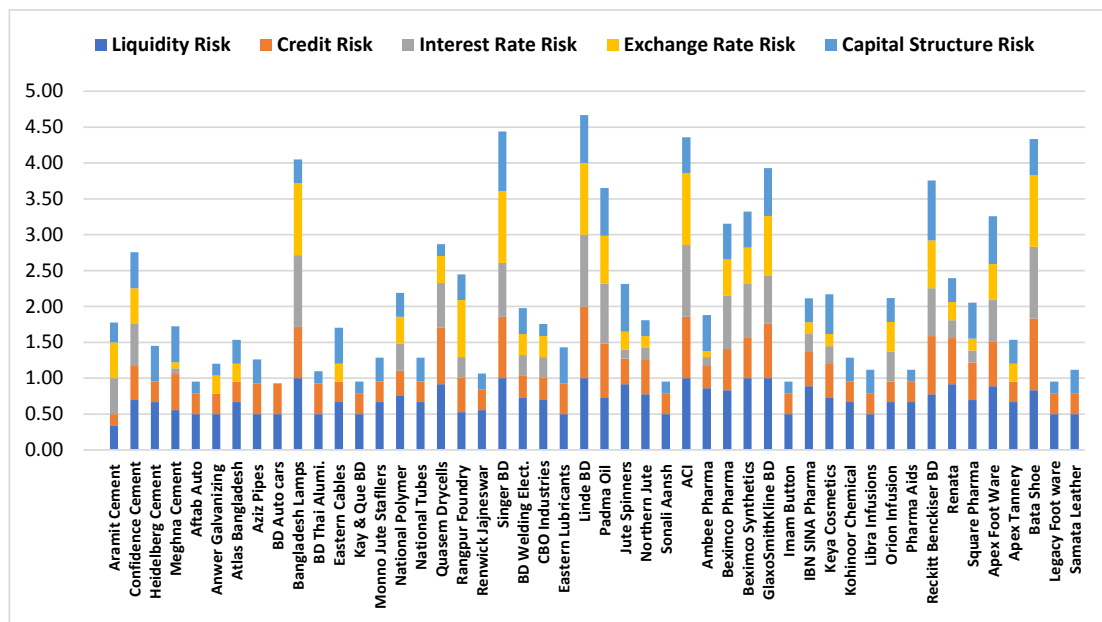
the sample. On average, the overall financial risk disclosure index is 0.44 during the study period of 2010 to 2015. The analysis of the distribution of the total disclosure indices for the 48 companies in the sample, for the period, shows that more than 56 percent of companies (27) have a lower index value than the average and the balance, about 44 percent of companies (21), have a higher index than the average value. The result indicates that despite compulsion with the introduction of BFRS-10, in 2010, most of the listed manufacturing companies have yet to disclose financial risk consistently and uniformly.



**Figure 1.** Distribution of overall financial risk disclosure indices during study period for each company in the sample.

### 7.2. Specific Disclosure Indices of Financial Risks: Analysis of Level

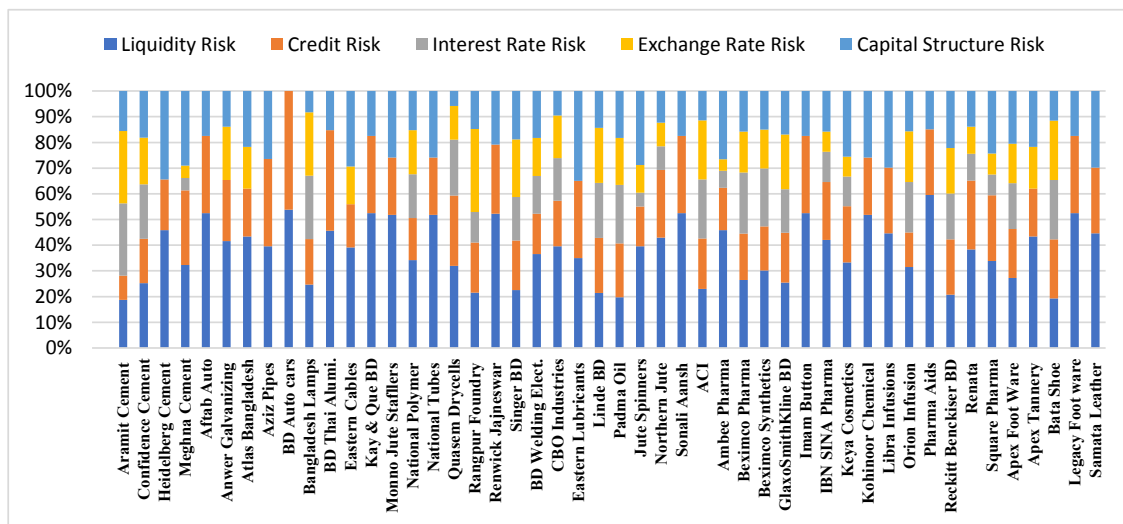
The analysis of levels of the disclosure indices relating to specific financial risks for each sample company is illustrated in Figure 2. The sample 48 companies are placed along the x-axis, and the accumulated level of financial risk for the five disclosure indices is on the y-axis. From the analysis of the graph, it is clear that financial risk disclosure is treated in heterogeneous ways by the companies. Levels of the individual indices show no common practice among the companies. This observed relatively heterogeneous practice of disclosing financial risk is important to the institutional settings of emerging economies and markets such as Bangladesh, because audited annual financial reports are the primary source of information for investors. Thus, more uniform and standardized financial risk disclosures enhance comparability of such disclosures and should be value-relevant to investors.



**Figure 2.** Accumulation of disclosure indices for individual financial risk during the study period of 2010 to 2015 for each company.

7.3. Specific Disclosure Indices of Financial Risks: Analysis of Composition

The analysis of the composition of the disclosure indices regarding specific financial risks for each individual company in the sample is illustrated in Figure 3. The sample companies are placed along the x-axis, and the percentage level of financial risk for the five disclosure indices is on the y-axis. Like level, the composition of aggregated value of financial risk disclosure shows no common practice among the companies with some diversity in disclosing financial risks.



**Figure 3.** Composition of the disclosure indices for individual financial risks during the study period of 2010 to 2015 for each company.

7.4. Univariate Analysis

Table 3 presents the correlation matrix showing the relationship between each of the independent variables and the dependent variable. The dependent variable financial risk disclosure index is strongly

related to auditor type and firm size, and moderately correlated to financial performance (ROA), but it is weakly related to other independent variables. All possible correlations among the independent variables are given in the correlation matrix. Our standard is to look for a correlation that exceeds an absolute value of ±0.70. None of the independent variables are strongly correlated with each other. This indicates that multi-collinearity is not likely.

**Table 3.** Correlation matrix. DR—disclosure risk; CEM—cement industry; TAN—tannery industry; PC—Pharmaceuticals and Chemical industry; ENG—Engineering industry; FP—fuel and power industry and other variables as defined previously.

Variables	FRDI	DR	ROA	FS	LIQD	AT	CEM	ENG	FP	Jute	PC	TAN
FRDI	1											
DR	−0.07	1										
ROA	0.38 **	−0.28 **	1									
FS	0.52 **	−0.29 **	0.25 **	1								
LIQD	0.07	−0.51 **	0.22 **	0.19 **	1							
AT	0.65 **	−0.001	0.47 **	0.49 **	0.09	1						
CEM	0.000	0.024	0.07	0.19 **	−0.07	0.03	1					
ENG	−0.21 **	0.01	−0.12 *	−0.23 **	0.12 *	−0.25 **	−0.21 **	1				
FP	0.16 **	−0.02	0.06	0.06	−0.03	0.16 **	−0.10	−0.24 **	1			
Jute	−0.07	0.20 **	−0.10	0.03	−0.20 **	−0.07	0.73 **	−0.29 **	−0.14 *	1		
PC	0.14 *	−0.09	0.18 **	0.28 **	−0.17 **	0.11	0.37 **	−0.57 **	−0.28 **	0.15 *	1	
TAN	0.01	−0.03	0.07	0.13 *	0.18 **	0.15 *	0.63 **	−0.34 **	−0.16 **	0.41 **	0.05	1

\*\* Correlation is significant at the 0.01 level (2-tailed). \* Correlation is significant at the 0.05 level (2-tailed).

### 7.5. Multivariate Analysis

Table 4 presents the results of our regression model. The adjusted R<sup>2</sup> measuring the strength of the relationship between the set of independent variables and dependent variable is 47.3 percent, which indicates that independent variables are relevant in predicting FRDI. The Durbin–Watson statistic is between 1 and 3, indicating that the errors in regression are independent. The computed F is 26.808, and hence supports our hypotheses. The standardized coefficient on size is 0.290 and is positively significant at the 1% level, suggesting the firm size is positively and significantly associated with the level of financial risk disclosure. The confidence on financial performance is 0.116 and positively significant at the 5% level. The coefficient on financial leverage is 0.036 positive, but statistically insignificant. The coefficient on the type of auditor is 0.449 and positive and significant at the 1% level. Coefficients of industry types are not statistically significant. These results suggest that larger companies, more profitable companies, and companies audited by Big 4 firms provide more financial risk disclosures. One possible explanation is that the bigger the firm, and the higher the profitability, the higher the level of resources available, particularly in developing countries, and thus the higher the level of disclosure produced.

**Table 4.** The Level of Financial Disclosure and Firm Financial Attributes.

Model	Unstandardized Coefficients		Standardized Coefficients	t-Value	Sig.
	B	Std. Error	Beta		
Constant	0.036	0.076		0.478	0.633
Firm Size	0.042	0.008	0.290	5.241 ***	0.000
Financial performance	0.306	0.138	0.116	2.212 **	0.028
Financial Leverage	0.030	0.046	0.036	0.651	0.516
Liquidity	−0.003	0.012	−0.013	−0.233	0.816
Cement Industrial Sector	−0.073	0.076	−0.085	−0.969	0.333
Fuel and Power Industrial Sector	0.049	0.038	0.063	1.298 *	0.195
Jute Industrial Sector	0.030	0.046	0.045	0.656	0.513
Pharmaceuticals and Chemical Industrial Sector	0.016	0.027	0.033	0.596	0.552

Table 4. Cont.

Model	Unstandardized Coefficients		Standardized Coefficients	t-Value	Sig.
	B	Std. Error	Beta		
Tannery Industrial Sector	−0.033	0.038	−0.054	−0.855	0.393
Type of Audit Firm	0.263	0.035	0.449	7.590 ***	0.000
Adj. R <sup>2</sup>				0.473	

This table presents the results from a regression of the level of financial risk disclosure and firms financial attributes. The dependent variable is the level of financial risk disclosure (FRDI). The independent variables are firm size, financial performance, leverage, liquidity, and industry classifications. This table presents results from OLS (Ordinary Least Squares) regression of the level of FRDI on financial attributes. The definitions of all other variables are reported in Table 1. Standard errors are clustered at the firm level, and t-statistics are reported in the related column. Significance at the 10%, 5%, and 1% levels are denoted by \*, \*\*, and \*\*\*, respectively.

### 8. Conclusions and Limitations

This study examines the level of financial risk disclosure of publicly traded manufacturing companies by investigating the association between the level of financial risk disclosure and firm specific characteristics. The results of the content analysis show that the sample companies treat financial risk disclosure in heterogeneous and less standardized manners. Although compliance with BFRS-7 requires that public companies uniformly disclose financial risk, our results show that there is no common practice in this regard. Thus, a more uniform and standardized financial risk disclosure can improve corporate disclosure in compliance with BFRS-7 and enhance comparability of financial risk disclosure. The results also confirm that the companies tend to provide more information on liquidity risk and less information about interest rate risk and currency risk.

The regression results show that firm size, financial performance, and auditor type are positively and significantly associated with the level of financial risk disclosure in annual reports. These results are consistent with those of various previous empirical studies worldwide (Amran et al. 2008; Das et al. 2015; Linsley and Shrivs 2006). The results suggest that firm size, performance, and auditor type are the main determinants of risk disclosure and are the driving factors for the selected companies to increase the level of financial risk disclosure. The results reveal that financial leverage, liquidity, and industry type have no association with the level of financial risk disclosure, which are consistent with findings of prior studies (e.g., Alsaeed 2006). As a result, these characteristics have no relevance to disclosing financial risk of the publicly traded manufacturing companies. Our results contribute to the business and accounting literature by providing an initial understanding of financial risk disclosure practices in Bangladesh, where the risk disclosure practice is still in an early stage.

There are, however, several limitations of this study. First, the study focuses on 30 selected disclosure items. Moreover, the choice of the items does not reflect their level of importance as perceived by financial information users and the coding approach is subject to coder bias. Second, the un-weighted or binary approach is used to measure the level of financial risk disclosure, which may not reflect the quality of financial risk disclosure. Third, the study is confined to one country in emerging markets and economies. Fourth, the information regarding risk can be provided in sources other than annual reports. Finally, a potential endogenous concern may exist in our analysis given the sample size in relation with the estimated coefficients. Thus, the results and their policy, practical, and research implications should be interpreted with caution, considering these potential limitations. Future research should address financial risk disclosure in other developing countries and investigate both the quality and quantity of financial risk disclosure.

**Author Contributions:** Authors have equally contributed to the paper. Research questions and hypothesis and research method were developed by S.Z.H., R.K.D. performed the analyses and Z.R. prepared the manuscript.

**Funding:** This research received no external funding.

**Conflicts of Interest:** The authors declare no conflicts of interest.



## References

- Abraham, Santhosh, and Paul Cox. 2007. Analyzing the determinants of narrative risk information in UK FTSE 100 annual reports. *British Accounting Review* 39: 227–48. [CrossRef]
- Akhtaruddin, Md. 2005. Corporate mandatory disclosure practices in Bangladesh. *International Journal Accounting* 40: 399–422. [CrossRef]
- Akhtaruddin, Mohamed, and Mahmud Hossain. 2008. Investment opportunity set, ownership control and voluntary disclosures in Malaysia. *JOAAG* 3: 25–39.
- Aliabadi, Sara, Alireza Dorestani, and Zabihollah Rezaee. 2013. Integration of Enterprise Risk management into Corporate Governance. *International Journal of Management Accounting Research* 3: 31–46.
- Al-Mulhem, Adnan Abdullah. 1997. An Empirical Investigation of the Level of Financial Disclosure by Saudi Arabian Corporations. Doctoral dissertation, University of Hull, Hull, UK.
- Alsaeed, Khalid. 2006. The association between firm-specific characteristics and disclosure: The case of Saudi Arabia. *Managerial Auditing Journal* 21: 476–96. [CrossRef]
- Amran, Azlan, and Roszaini Haniffa. 2011. Evidence in development of sustainability reporting: A case of a developing country. *Business Strategy and the Environment* 3: 141–56. [CrossRef]
- Amran, Azlan, Abdul Manaf Rosli Bin, and Bin Che Haat Mohd Hassan. 2008. Risk reporting: An exploratory study on risk management disclosure in Malaysian annual reports. *Managerial Auditing Journal* 24: 39–57. [CrossRef]
- Barako, Dulacha G., Phil Hancock, and H. Y. Izan. 2006. Factors influencing voluntary corporate disclosure by Kenyan companies. *Corporate Governance: An International Review* 14: 107–25. [CrossRef]
- Beasley, Mark, Don Pagach, and Richard Warr. 2008. Information conveyed in hiring announcement of senior executives overseeing enterprise-wide risk management process. *Journal of Accounting, Auditing and Finance* 23: 311–32. [CrossRef]
- Beretta, Sergio, and Saverio Bozzolan. 2004. A framework for the analysis of firm risk communication. *The International Journal of Accounting* 39: 265–88. [CrossRef]
- Brammer, Stephen, and Stephen Pavelin. 2008. Factors influencing the quality of corporate environmental disclosure. *Business Strategy and the Environment* 17: 120–36. [CrossRef]
- Bujaki, Merridee, and Bruce J. McConomy. 2002. Corporate governance: Factors influencing voluntary disclosure by publicly traded Canadian firms. *Accounting Perspectives* 1: 105–39. [CrossRef]
- Chalmers, Keryn, and Jayne M. Godfrey. 2004. Reputation costs: The impetus for voluntary derivative financial instrument reporting. *Accounting Organizations and Society* 29: 95–125. [CrossRef]
- Connelly, Brian L., S. Trevis Certo, R. Duane Ireland, and Christopher R. Reutzel. 2011. Signaling theory: A review and assessment. *Journal of Management* 37: 39–67. [CrossRef]
- Core, John E. 2001. A review of the empirical disclosure literature: Discussion. *Journal of Accounting and Economics* 31: 441–56. [CrossRef]
- Das, Sumon, Rob Dixon, and Amir Michael. 2015. Corporate mandatory reporting: A longitudinal investigation of listed companies in Bangladesh. *Global Review of Accounting and Finance* 6: 64–85. [CrossRef]
- Deumes, Rogier, and W. Robert Knechel. 2008. Economic incentives for voluntary reporting on internal risk management and control systems. *Auditing: A Journal of Practice & Theory* 27: 35–66.
- Dobler, Michael. 2005. National and international developments in risk reporting: May the German Accounting Standard 5 lead the way internationally. *German Law Journal* 6: 1191–200.
- (DOF) Dodd–Frank Wall Street Reform and Consumer Protection Act. 2010. *111th Congress Public Law 203*; Washington, DC: Government Printing Office. Available online: <http://www.gpo.gov/fdsys/pkg/PLAW-111publ203/html/PLAW-111publ203.htm> (accessed on 16 June 2018).
- Ferguson, Michael J., Kevin C. K. Lam, and Grace Meina Lee. 2002. Voluntary disclosure by state-owned enterprises listed on the stock exchange of Hong Kong. *Journal of International Financial Management & Accounting* 13: 125–52.
- Financial Reporting Act (FRA). 2015. The Bangladesh National Parliament. Available online: <http://www.icmab.org.bd/images/stories/journal/2015/Nov-Dec/6.Opinions%20%20Comments.pdf> (accessed on 16 June 2018).
- Haniffa, Ros M., and Terry E. Cooke. 2002. Culture, corporate governance and disclosure in Malaysian corporations. *Abacus* 38: 317–49. [CrossRef]

- Hasan, Tanweer, Waresul Karim, and Shakil Quayes. 2008. Regulatory change and the quality of compliance to mandatory disclosure requirements: Evidence from Bangladesh. *Research in Accounting Regulation* 20: 193–203. [\[CrossRef\]](#)
- Hasan, Md. Shamimul, Syed Zabid Hossain, and Robert J. Swieringa. 2013. Corporate governance and financial disclosures: Bangladesh perspective. *Corporate Governance* 4: 109–19.
- Healy, Paul M., and Krishna G. Palepu. 2001. Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics* 31: 405–40. [\[CrossRef\]](#)
- Hossain, Mohammed, and Peter J. Taylor. 2007. The empirical evidence of the voluntary information disclosure in the annual reports of banking companies: The case of Bangladesh. *Corporate Ownership and Control* 4: 111–25. [\[CrossRef\]](#)
- Inchausti, Begoña Giner. 1997. The influence of company characteristics and accounting regulation on information disclosed by Spanish firms. *European Accounting Review* 6: 45–68. [\[CrossRef\]](#)
- Kabir, M. Humayun, Divesh Sharma, Md Ainul Islam, and Amirus Salat. 2011. Big 4 auditor affiliation and accruals quality in Bangladesh. *Managerial Auditing Journal* 26: 161–81. [\[CrossRef\]](#)
- Kamal Hassan, Mostafa. 2009. UAE corporations-specific characteristics and level of risk disclosure. *Managerial Auditing Journal* 24: 668–87. [\[CrossRef\]](#)
- Khlifi, Foued, and Abdelfettah Bouri. 2010. Corporate Disclosure and Firm Characteristics: A Puzzling Relationship. *Journal of Accounting, Business & Management* 17: 62–89.
- Konishi, Noriyuki, and Md Mohobbot Ali. 2007. Risk reporting of Japanese companies and its association with corporate characteristics. *International Journal of Accounting, Auditing and Performance Evaluation* 4: 263–85. [\[CrossRef\]](#)
- Lajili, Kaouther, and Daniel Zéghal. 2005. A content analysis of risk management disclosures in Canada annual reports. *Canada Journal of Administrative Science* 22: 125–42. [\[CrossRef\]](#)
- Linsley, Philip M., and Michael J. Lawrence. 2007. Risk reporting by the largest UK companies: Readability and lack of obfuscation. *Accounting, Auditing & Accountability Journal* 20: 620–27.
- Linsley, Philip M., and Philip J. Shrivies. 2006. Risk reporting: A study of risk disclosures in the annual reports of UK companies. *The British Accounting Review* 38: 387–404. [\[CrossRef\]](#)
- Lombardi, Rosa, Daniela Coluccia, Giuseppe Russo, and Silvia Solimene. 2016. Exploring financial risks from corporate disclosure: Evidence from Italian listed companies. *Journal of the Knowledge Economy* 7: 309–27. [\[CrossRef\]](#)
- Lopes, Patrícia Teixeira, and Lúcia Lima Rodrigues. 2007. Accounting for financial instruments: An analysis of the determinants of disclosure in the Portuguese stock exchange. *The International Journal of Accounting* 42: 25–56. [\[CrossRef\]](#)
- Magness, Vanessa. 2006. Strategic posture, financial performance and environmental disclosure: An empirical test of legitimacy theory. *Accounting, Auditing & Accountability Journal* 19: 540–63.
- Miihkinen, Antti. 2010. What drives quality of firm risk disclosure? The impact of a national disclosure standard and reporting incentives under IFRS. *The International Journal of Accounting* 47: 437–68. [\[CrossRef\]](#)
- Milne, Markus J. 2002. Positive accounting theory, political costs and social disclosure analyses: A critical look. *Critical Perspectives on Accounting* 13: 369–95. [\[CrossRef\]](#)
- Nandi, Sunil, and Santanu Kumar Ghosh. 2013. Corporate governance attributes, firm characteristics and the level of corporate disclosure: Evidence from the Indian listed firms. *Decision Science Letters* 2: 45–58. [\[CrossRef\]](#)
- Naser, Kamal, Khalid Al-Khatib, and Yusuf Karbhari. 2002. Empirical evidence on the depth of corporate information disclosure in developing countries: The case of Jordan. *International Journal of Commerce and Management* 12: 122–55. [\[CrossRef\]](#)
- Ng, Anthony C., and Zabihollah Rezaee. 2015. Business sustainability performance and cost of equity capital. *Journal of Corporate Finance* 34: 128–49. [\[CrossRef\]](#)
- Oliveira, Jonas, Lúcia Lima Rodrigues, and Russell Craig. 2011a. Risk-related disclosures by non-finance companies: Portuguese practices and disclosure characteristics. *Managerial Auditing Journal* 26: 817–39. [\[CrossRef\]](#)
- Oliveira, Jonas, Lúcia Lima Rodrigues, and Russell Craig. 2011b. Voluntary risk reporting to enhance institutional and organizational legitimacy: Evidence from Portuguese banks. *Journal of Financial Regulation and Compliance* 19: 271–89. [\[CrossRef\]](#)

- Pagach, Donald, and Richard Warr. 2007. An Empirical Investigation of the Characteristics of Firms Adopting Enterprise Risk Management. Working Paper, College of Management, North Carolina State University, Raleigh, NC, USA.
- Poskitt, Russell. 2005. Disclosure regulation and information risk. *Accounting and Finance* 45: 457–77. [[CrossRef](#)]
- Reverte, Carmelo. 2009. Determinants of corporate social responsibility disclosure ratings by Spanish listed firms. *Journal of Business Ethics* 88: 351–66. [[CrossRef](#)]
- Rezaee, Zabihollah. 2016. Business sustainability research: A theoretical and integrated perspective. *Journal of Accounting Literature* 36: 48–64. [[CrossRef](#)]
- Schuster, Peter, and Vincent O’Connell. 2006. The trend toward voluntary corporate disclosures. *Management Accounting Quarterly* 7: 1–9.
- Verrecchia, Robert E. 1983. Discretionary disclosure. *Journal of Accounting and Economics* 5: 179–94. [[CrossRef](#)]
- Wallace, R. S. Olusegun, and Kamal Naser. 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: 311–68. [[CrossRef](#)]
- Wang, Kun, O. Sewon, and M. Cathy Claiborne. 2008. Determinants and consequences of voluntary disclosure in an emerging market: Evidence from China. *Journal of International Accounting, Auditing and Taxation* 17: 14–30. [[CrossRef](#)]



© 2018 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).