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# Value Relevance for Nonfinancial along with Financial Information: A Study of Selected Listed Companies of Bangladesh

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**Abstract**

The purposes of this study are to observe the status of disclosing nonfinancial information in corporate annual reports of Bangladesh, to test any need for disclosing more such information and to substantiate value relevance for disclosing nonfinancial along with financial inform ation disclosures. To assess information disclosures, researcher constructed index for nonfinancial information materials has been used in this study. Content analysis of corporate annual reports has been adopted for the quantification of information disclosures. Besides, a regression model has been applied for examination of value relevance for nonfinancial along with financial information. It has been proved by this research that Bangladeshi listed companies can have positive impact on share price by disclosing more nonfinancial along with financial information in their annual reports. The support of this study for the inclusion of nonfinancial with financial information for assessing share price can be an important contribution to the corporate theoretical share valuation concept.

**Keywords:** Corporate Disclosures, Nonfinancial Information, Value Relevance
**JEL Classification:** C12, C31, M14

## 1. Introduction

There are various interpretations to the value relevance for corporate information disclosures. The interpretation means that value relevance is counted in terms of news, and that value relevant information alters stock prices as it causes investors to adjust their anticipations. The apparent significance to investors of financial information motivates at least certain portion of disclosure action that expects disclosures of financial information itself. This understanding does not demand that financial statement be the primitive basis of information. It is reliable with the value relevance of financial information skimming from the financial statements. The prior studies relating to alterations of value relevance throughout times add to perceiving whether the current

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financial reporting models are sufficient to show the company performance in the present technologically developed business environment.

The value relevance model, used in prior researches, illustrates the firm value as a linear function of financial information including earnings, book value and additional information releases. Financial information refers to the information relating to company accounts. Reporting financial information only in the annual report does not offer investor the firm's future valuation and the ability to know its prospects and dangers. Nonfinancial information (NFI), since associated with financial information, can offer precious understanding into the aggregate nature of management, an important alternative in the evaluation of corporate financial forecasts. Nonfinancial Information can be defined as " … Non-financial information belonging to the narrative part of any annual report are an addition to the financial information and disclosed voluntarily for serving better interests of the stakeholders of a company" (Islam and Saleem, 2014: p.310). To fortify financial information supplied by corporate traditional accounting, nonfinancial information reporting offers information that assists in putting historic performance into one setting and representing prospects as well as dangers for the firm in future. Though, lots of theoretical discussions in previous researches indicate the value relevance of financial or nonfinancial information, there is hardly any prior study that added a variable for nonfinancial taking place of the same for additional information to the value relevance model for financial information. Therefore, this study has taken an attempt to examine the worth of releasing nonfinancial along with financial information in the annual reports of listed companies of Bangladesh by using a modified value relevance model.

## 2. Objectives of the Research

The objectives of this research are:

i. developing an index containing different categories of nonfinancial information (NFI);
ii. observing the extent of disclosed NFI in the company annual reports of Bangladesh;

iii. examining the need for disclosing more NFI in corporate reporting of Bangladesh; and

iv. inspecting any value relevance of reporting NFI along with financial information.

## 3. Literature Review

From the study of Ball and Brown (1968), researchers have engendered several works evidencing a relation between earnings and share returns of a company. Later, research on value relevance of financial information has been extended to include measures of both income statement and balance sheet using Ohlson's (1995) approach (Chen et al., 2001). Most of studies of the United States outline value relevance as the capacity of financial extents to include materials that mark company value. Having this meaning, researchers constantly count value relevance as the link between financial measures and share price (Hung, 2001). Stock return is the most vital one in evaluating the financial performance of a company. Any positive sock return in a fiscal year refers to an increase in the wealth of stockholders. Increasing the wealth of stockholders is considered to be the main objective of a business unit; such a unit needs to run its business in a way that increases the wealth of stockholders by gaining suitable return.

James A. Ohlson had a notable contribution to assess the value relevance of financial information by bringing out a stringent valuation approach. Ohlson (1995) developed and studied the model of share price as firm's equity value that relates to the income statement item of earning and the balance sheet item of book value. Furthermore, Ohlson declared that the valuation approach gratifies many pleasing aspects and offers a valuable standard when an individual conceptualizes how market value links to financial data and additional information.

Ohlson's value relevance model (1995) – per share basis

$$P_{it+1} = \alpha_0 + \alpha_1 E_{it} + \alpha_2 BV_{it} + \alpha_3 V_t$$

$P_{it+1}$ : Share Price of firm i, at date later than t

$\alpha_0$ : Intercept

$E_i$ : Earning Per Share for the period completing date of t of company i

$BV_{it}$ : Book value Per Share of company i at date t

$V_t$ : Additional information at date t

Chen et al. (2001) addressed a research question of whether financial information is value relevant to local share market. By following many studies on value relevance, they used the Ohlson's (1995) model. Findings of the research proved that financial information is observed as value relevant by the investors in China. The research deduces that the financial information as found in the income statement and the balance sheet is value relevant to local investors in the Chinese stock market. Their used value relevant model unveils that both earning and book value per share are value relevant for measuring share price of a company. Ibrahim et al. (2009) testified that financial information had a significant role in the valuation of Malaysian companies even in a period of financial crisis. Their findings advocate that earnings and book value cover maximum information that is pertinent to measure the company financial information. Again, they enunciate that coefficient for other than financial i.e., additional information is more valued during the financial crisis compared to after the financial crisis.

Value relevance is considered mainly with respects to the expounding power of traditional financial variables for stock returns. Unfortunately, this traditional value relevance concept has had only inadequate practical implications because of the emerging need for nonfinancial information disclosure in corporate reporting. For example, Chan, Martin and Kensinger (1990) as well as Chauvin and Hirschey (1993) found positive valuation impact of research and development (R&D) costs for a wide sample of companies. Likewise, Lev and Sougiannis (1996) estimated R&D investment for a big sample of companies, and found that such assessments are value relevant to potential investors. Positive effects of R&D cost declarations on share market returns had also been reported by Sundaram, John and John (1996), amongst others.

Corporate legitimacy theory is broadly used to recognize the motivations behind voluntary environmental and societal reporting (Brown and Deegan, 1998; Deegan and Rankin, 1996; Deegan, 2002; Deegan, Rankin and Tobin, 2002; Gray et al., 1995; Guthrie and Parker, 1989; Mathews, 1993; Milne and Patten, 2002). Noticeably, the release of social information turns into a reaction to environmental factors (Preston and Post, 1975). Further, varying social values and norms create incentive for organizational change and generate a basis for force of company legitimization (Dowling and Pfeffer, 1975). While majority of the empirical literatures presents evidence to advocate that a certain incidence is tracked by the variations in the level of environmental or societal information, most academic literature emphases on clarifying that companies disclosing environmental or societal information to legitimize their behaviors to the society as a whole and to ascertain compliance with what is supposed to be publicly acceptable. In such perspective, the release of nonfinancial (like R&D, environmental and societal) information appears to be an evident way for companies to supply information on their actions to legitimize their behaviors.

Brown et al. (1999) documented an enduring reduction in the importance of financial information as a significant factor of the market value of a company. They found that there had been an intense fall in the value relevance of financial information during the period of post-World War II. This and allied outcomes have provided a rising concern amongst both experts and researchers that company financial statements have missed a major part of their significance for investors (Francis and Schipper, 1999). Their study has effects for those who are more thoughtful about reporting a model for the financial information. Their objective was to examine and explain some of the experimental inferences of the assertion that financial statement information has missed out its importance with time. Results specify that for some financial statement items there has statistically been an important fall in value relevance. The proof of dropped value relevance of financial information over time, like finding of the study conducted by Goodwin and Ahmad (2006), advocates that those conventional financial statements do not sufficiently reproduce the actual value building business activities with technological improvements. Furthermore, downfall to identifying the common intangible assets produced inside the companies may

cause value relevance to decline. Literature related to financial reporting discloses that firms progressively rely more on additional or deliberate disclosure than mere accounting figures for reporting intangible asset information. Muhammad and Ali (2010) supplied proof that the improved level of voluntary disclosures of private entities are paid with advanced valuations by the market of Jordanian listed firms over a 9-year period, 1996-2004.

Although the early studies evidenced the accounting figures are value relevant, the worth of financial information in the recent market is suspicious. Accounting academics have usually assessed the utilities of accounting exercises by the level of their accord with a specific diagnostic model. The value relevance to investors of financial information of autonomous cellular firms was inspected by Amir and Lev (1996). They found that financial information alone is not mostly relevant for the valuation of cellular firms. Conversely, when joint with nonfinancial like intangible asset information, those variables do participate much to the manifestation of firm valuation. This outcome exhibits the complementarities between nonfinancial and financial information. Additionally, the outcome informed that the value relevance of other than financial i.e., nonfinancial information overcomes that of customary financial signs. Orens and Lybaert (2015) uttered that the drop in the significance of financial statement information to weigh companies leads to demands from corporate stakeholders to communicate nonfinancial information for the purpose of being capable for ascertaining companies' financial performances. Accordingly, Krištofik et al. (2016) reported in their study that CSR (a category of non-financial information materials) reporting is growing significantly in Asia, 25.6% in 2012 and 23.1% in 2010 of the surveyed organizations. However, the outcome of the research of Belenesi et al. (2021) addressed that there is a sluggish but stable growth of Romanian companies in reporting and revealing some of the nonfinancial information materials.

The prior researches pointed out value relevance of some (alike company governance, research & development, intangible asset, environmental and societal, CSR) of the nonfinancial information materials without covering other emerging items like company strategy and forward-thinking information. The

complete findings of the previous researches pertinent to value relevance of financial information do not offer clean proof that the financial information is only value relevant in all market settings. Though, the balancing between financial and nonfinancial information delivers sufficient proof that the corporate reporting model should be composed of both financial as well as nonfinancial information.

## 4. Research Scope

### 4.1 Scope for Developing Nonfinancial Information (NFI) Index

Bangladesh has own standards for reporting corporate information particularly on financial and governance issues. However, no complete standard or set of guidelines have been provided by any professional body or standard setting institution for reporting maximum number of nonfinancial information materials. Most of the international professional bodies and the regulatory bodies of Bangladesh are more concerned about financial as well as some of nonfinancial information including company governance, social responsibility, R&D, and environmental categories. Further, they only demonstrated the major categories without mentioning quality items under each category of nonfinancial information. Even categories of nonfinancial information are scattered in different studies rather clustered in one specific study. So, it is needed to integrate all relevant nonfinancial materials suggested by prior studies and the guidelines of professional as well as regulatory bodies. Hence, there is a scope to develop an index by incorporating maximum number of nonfinancial appropriate items in one place and then assorting them under their major categories.

### 4.2 Scope for Examining the Extent of NFI Disclosed

Literature review shows the evidence that disclosing more relevant nonfinancial information is an incentive to the companies. From the discussion of such review, it has also been found that some studies regarding the investigation for extent of disclosing some categories of nonfinancial information have been conducted on developed countries. A very few research

concerning even the same has been done on developing countries. Thus, a scope of research can be found to observe the extent of disclosing nonfinancial information materials by the companies of a developing country like Bangladesh.

### 4.3 Scope for Testing the Necessity of Disclosing More NFI

Prior literatures related to corporate information reporting reveal that companies increasingly depend on more disclosures than only on traditional financial information. Almost very few researches were conducted for testing the need for disclosing more nonfinancial information in corporate annual reports. Thus, a scope for testing such need has been developed.

### 4.4 Scope for Testing the Value Relevance of NFI Disclosure

Most of the prior researchers focused on value relevance of financial information (book value and/or earning per share). There were minor discussions in the prior literatures for the value relevance of nonfinancial along with financial information disclosures. So, there is a space in prior literatures mainly in examining the value relevance of nonfinancial along with financial information disclosures. This exposure is important for rethinking the value relevance model including nonfinancial items along with financial information. Hence, this study intends to examine whether the disclosure of nonfinancial information along with financial information has an influence on determining corporate share prices.

## 5. Research Methodology and Hypotheses

The research of this study includes developing an index for relevant nonfinancial information disclosures, observing the extent of corporate nonfinancial information disclosures, examining the need for disclosing more nonfinancial information in the corporate annual reports as well as inspecting value relevance for disclosing such information along with financial information.

## 5.1 Methodology for Observing Information Disclosures

In this study, contents of the corporate annual reports have been studied for finding out the extent of disclosures of an index for relevant nonfinancial information items. Then, nonfinancial information disclosures have been identified and then quantified in this research.

### 5.1.1 Index Methodology

In developing an index for nonfinancial information items, the researcher investigated the directions of different professional bodies like AccountAbility (2018), BEIS [Business, Energy & Industrial Strategy] (2020), GRI [Global Reporting Initiative] (2022). The overall framework for disclosing corporate information in Bangladesh was also examined as reporting environment of Bangladesh is the context of this research. There is hardly a settled theory on the selection and the number of information materials to incorporate in a corporate disclosure index (Wallace et al., 1994). In the researcher-constructed index, different categories of nonfinancial information materials were identified by reviewing prior literatures. Afterward, relevant information items were incorporated under each of such categories. This study has adopted narrow approach by focusing on only nonfinancial information but detailed approach while incorporating various categories of such information into an index. In this study, the researcher has developed an index to determine the extent of corporate nonfinancial information disclosures.

### 5.1.2 Content Analysis Research Method

Content analysis is a procedure that comprises of classifying qualitative information in subjective form into groups in order to develop quantitative measures of changing levels of difficulty (Abbott and Monsen, 1979). Many researchers employed content analysis method to examine the level of information disclosures in the corporate annual reports (Inchausti, 1997). This study has used content analysis so as to fold experiential evidence on the extent of nonfinancial information revealed by the Bangladeshi listed companies.

### 5.1.3 Population and Sample for Content Analysis

The population for content analysis of annual reports of this study includes all listed companies of Bangladesh. The Dhaka Stock Exchange (DSE), situated in Bangladesh, has been chosen as sample area to collect sample of this research. The DSE is the major one between two stock exchanges in Bangladesh. Hence, it can be demanded that sample taken from the DSE be representative of the whole population. The sample companies of this study are chosen from the corporate entities listed at DSE under eight industries namely: banks, engineering, non-banking financial institutions, food & allied, fuel & power, insurance, pharmaceuticals & chemicals and textile. The industries having less than 10 companies have been regarded as small sectors. Therefore, those have been discarded in collecting sample companies. More samples are selected from financial sectors including banks, insurance and non-banking financial institutions. These types of firms are financially rich in nature and donate more in corporate social responsibility activities. Consequently, they are expected to disclose such type of nonfinancial information in their annual reports. The number of corporate entities in the population and the corresponding sample (under each of the industries) are presented in the Table-1 below:

**Table 1: Population and Sample for Content Analysis**

| Selected Industry Sectors | Population Number of Corporate Entities Listed up to June 2020 | Sample Number of Corporate Entities |
|---|---|---|
| Bank | 33 | 26 |
| Engineering | 42 | 10 |
| Non-banking Financial Institutions | 23 | 15 |
| Food and Allied | 21 | 4 |
| Fuel and Power | 23 | 6 |
| Insurance | 53 | 23 |
| Pharmaceuticals and Chemicals | 32 | 5 |
| Textile | 58 | 12 |
| **Total** | **285** | **101** |

**Source:** Sample size for corporate data survey (2020-2021)

When forming a sample size of 101 companies for testing different hypotheses of this study, the companies having outliers of data variables for

regression were eliminated initially to get statistically significant normally distributed curve. An outlier is a look that stays an unusual away from other points in a random sample from a population which alter database statement.

In addition, firms listed primary at the first time in the period of 2020-2021 are omitted as newly listed ones may quiet be emerging their information release exercise, same with the study of Leventis and Weetman (2004). Furthermore, firms delivered partial annual reports are discarded. Lastly, firms with shares traded infrequently are not considered. Consequently, mere the firms whose shares have been traded actively in the share market are considered for this research. The ultimate sample of the research has reached to its size of 101 companies (around 35% of the population) after selecting them on stratified sampling technique.

### 5.1.4 Data Collection Source for Content Analysis

For the objective of the content analysis carried out in this study, secondary data source is used. Information release literature has got that the corporate annual reports are identified to be the most vital ways for the firms to spread information to the public (Hines, 1982; Chang and Most, 1981). Hence, the corporate annual reports have been surveyed in this research to determine the levels of nonfinancial information materials released by the Bangladeshi listed firms. These annual reports were gathered through DSE and corporate web-sites.

### 5.1.5 Data Collection Instrument for Content Analysis

The tool used for gathering secondary data is an investigator constructed index of nonfinancial information. A ground of using the index is that this can be adopted when there is no clear weighting technique available in which case identical weights are given to each information group. To know the level of nonfinancial information disclosed by the companies, the information materials comprised of the index are examined in the annual reports of sample firms. The use of such information release list was also seen in the prior researches (for instance, Singhvi, 1968; Singhvi and Desai, 1971).

### 5.1.6 Data Period for Content Analysis

The corporate annual reports examined in line of this research are all reports that are publicly made available in the single period of 2020-2021 (the most recent) for each of the 101 listed sample companies. The single period is principally because of the interest of eliminating the challenges of economic fluctuations over multiple periods.

### 5.1.7 Approach for Scoring Information Disclosures

There is a significant debatable issue in prior studies on the recording of information release materials (Barako, 2007). The issue is whether the information release materials should be weighted or un-weighted. Barako (2007) claims that both the methods have been complained. The weighted method may initiate favoritism towards specific user-position. The un-weighted method settles on the central supposition that all things are similarly weighty, which may not essentially be real. An un-weighted dichotomous method is accepted in this research for the scoring purpose. This was also adopted by the earlier studies (e.g. Cooke, 1989, 1992, 1998; Ahmed and Nicholls, 1994; Hossain et al., 1995; Raffournier, 1995; Wallace and Naser, 1995; Suwaidan and El-Khouri, 2000; Leventis and Weetman, 2004; Suwaidan et al., 2004; Hassan et al., 2006) of corporate information release. Since Cooke (1989) is the foremost to offer the un-weighted method, it is usually denoted to as Cooke index method. Un-weighted method is favored at this is grounded on a supposition that apiece item of information release is uniformly significant, this lessens bias and this supplies an impartial valuation of information items. This method employs a dichotomous technique to form a recording design that ascertains the extent of information release in the annual reports.

### 5.1.8 Scoring Procedure for Disclosure Score

Using the checklist of selected index for relevant nonfinancial information disclosures, the annual reports of 101 sample firms were examined. A dichotomous technique was applied to mark individually the information release issues. A firm was awarded a mark of “1” if it seems to have released an appropriate information item and of “0” if it doesn’t. Thus, the equation under a

useful way to count any score of a firm for disclosing nonfinancial information is presented below:

**Nonfinancial Information (NFI) Disclosure Score** = $\sum_{j=1}^{m} d_j$

Where, d = 1 if issue $d_j$ is released
d = 0 if issue $d_j$ is not released
m = the sum of issues really released
n = sum of indexed issues which the firm is anticipated to release
$m \leq n$

The percentage of Nonfinancial Information (NFI) released by each of sample firms is then calculated by employing the below formula:

$$= \frac{\text{Sum of the Score of a Particular Firm for Releasing Nonfinancial Information}}{\text{Highest Possible Score Attainable by an Individual Firm (n)}} \times 100$$

### 5.2 Methodology for Research Hypotheses

The key research theme of this research is to examine the need for disclosing more nonfinancial information along with financial information in corporate reporting. Both such information are examined.

#### 5.2.1 Hypotheses Development

Based on prior literature investigation, the following two research hypotheses are considered.

The 1st hypothesis: There is a positive connotation between share price and nonfinancial information releases.

The 2nd hypothesis: There is a value relevance of nonfinancial information along with financial information releases.

The justification for developing above hypotheses is that finding out any significant positive effect of disclosing nonfinancial materials on share price would validate the need for disclosing more nonfinancial information in corporate reporting. Also, any statistical significance of modified model [of the model of Ohlson (1995) with incorporating nonfinancial information as additional information] would substantiate the value relevance of nonfinancial information along with financial information disclosures.

### 5.2.2 Developing Regression Model

The Ohlson (1995) value relevance model (as indicated under literature review) is modified to develop new regression model for testing the above hypotheses.

The *additional information* (symbolized as '$V_t$' in the original model) is phased out and replaced with nonfinancial information (NFI) score to form a new model relevant for current study.

Modified regression model (to test the research hypotheses)

$$SP_{it} = \alpha_0 + \alpha_1 EPS_i + \alpha_2 BVS_i + \alpha_3 NFI_i + €_i$$

$\alpha_0$ : Intercept
$SP_{it}$ : Price of a share of company i, at the date on which the annual report is issued
$EPS_i$ : Earning per share of company i [Net Profit after Tax ÷ Outstanding Shares (OS)]
$BVS_i$ : Book value per share of company i [(Total Assets -Total Liabilities) ÷ OS)]
$NFI_i$ : Total nonfinancial information disclosure score received for company i
$€_i$ : Identically and independently disturbed error term

### 5.2.3 Sample Data for Examining the Value Relevance of NFI Disclosures

The secondary source is applied to collect data for testing the hypotheses formulated for research of this study. The sample companies employed for testing the value relevance are same to that utilized for finding out the level of nonfinancial information disclosures. Further, summarized information regarding data collection methodology for examining the value relevance of nonfinancial information is mentioned below:

| | |
|---|---|
| Population | : Companies listed at DSE of Bangladesh |
| Number of selected industries | : 8 out of 18 industries (i.e. about 44%) |
| Method for selecting sample | : Stratified sampling from selected industries |

| | |
|---|---|
| Sample size | : 101 out of 285 companies (i.e. about 35%) |
| Sample collection period | : Annual report publication year of 2020-2021 |

The database relevant to the test for value relevance of nonfinancial information is formed by gathering the following data for each of the sample firms.

- Closing Share Price (SP) at the issue date of annual report
- Earnings Per Share (EPS)
- Book Value per Share (BVS)
- Nonfinancial Information (NFI) score measured by using un-weighted dichotomous approach (score one for disclosed and zero for not disclosed). The total of nonfinancial disclosures is determined by adding the scores given to an individual company for disclosing the items of selected index for nonfinancial information disclosures.

The data are collected from the web sites of the selected companies, the DSE web site and by analyzing the annual reports of the sample companies. A one-year cross sectional sample is employed for minimizing the impact of changes from year to year in economic situations.

## 6. Data Reporting and Analysis

### 6.1 Nonfinancial Information (NFI) Index

The researcher of this study has developed an index in order to use for current study. The index enclosed a broad range of nonfinancial information materials that might appear in the corporate annual reports. Relevant to using disclosure index of this study, many prior researches on voluntary disclosure were conducted, especially in the developing countries including China (Yuen et al., 2009), India (Singhvi, 1968), Jordan (Naser et al., 2002), Kenya (Barako et al., 2006), Kuwait (Hossain et al., 1994), Malaysia (Yusoff and Hanefaf, 1995), Mexico (Chow and Wong-Boren, 1987), Nigeria (Wallace, 1988), and

South Africa (Fire and Meth, 1986). The researcher constructed NFI index used in this study has been provided under Appendix-1.

### 6.2 Status of Nonfinancial Information Disclosures

To get the status of revealing nonfinancial information by Bangladeshi companies, 101 listed companies from 8 different industry sectors were selected for sample as indicated under methodology part of this study.

#### 6.2.1 Nonfinancial Information Disclosure Score

For nonfinancial disclosure score, every item on the checklist of the developed index is given a weight of '1' if it is released and '0' if the same is not released in the annual report of each of the sample companies. In the research of this study, disclosure score for each of the 101 sample companies has been constructed. Then percentage of disclosures is calculated by the physical score given to a specific company as a percentage of highest achievable scores for releasing the materials of the researcher constructed index. Thus, the lowest score for a company can be zero percentage, if such company does not release any information material and the highest can be 100%, if the same releases all the information materials of the index.

#### 6.2.2 Extent of Nonfinancial Information Disclosures

The sample companies' scores for disclosing nonfinancial information are computed in this study. Using the scores, nonfinancial category-wise average disclosure items have been figured out for each of the industry sectors. Afterward, average disclosure percentages have been calculated by measuring the average items disclosed as a percentage of information items under particular nonfinancial category of the researcher constructed index. The calculated such percentages are exhibited in the following table II below:

**Table-2: Extent of Disclosures for Nonfinancial Information Categories** ***Inner***
***(figures show average actual disclosures in percentage)***

| ***Nonfinancial Information Categories*** | ***INDUSTRY SECTORS*** | | | | | | | | ***Aggregated Average (%)*** |
|---|---|---|---|---|---|---|---|---|---|
| | **Bank** | **Engg.** | **NFI** | **FP** | **FA** | **Ins.** | **PC** | **Tex.** | |
| Company Strategy | 84 | 43 | 57 | 78 | 48 | 70 | 99 | 62 | 67.63 |
| Overall Company Info | 83 | 45 | 73 | 59 | 66 | 75 | 84 | 60 | 68.13 |
| Company Governance | 85 | 55 | 84 | 59 | 52 | 80 | 71 | 61 | 68.50 |
| Risk and Trend Info | 90 | 50 | 78 | 59 | 69 | 78 | 73 | 50 | 68.38 |
| Customer Gratification | 49 | 22 | 42 | 73 | 42 | 47 | 80 | 35 | 48.75 |
| Supply Chain Info | 47 | 21 | 39 | 50 | 48 | 54 | 86 | 50 | 49.38 |
| Environmental & Societal | 57 | 17 | 30 | 36 | 11 | 18 | 46 | 13 | 28.50 |
| Intangible Asset Info | 45 | 30 | 47 | 66 | 51 | 49 | 62 | 44 | 49.25 |
| Human Capital Info | 57 | 15 | 46 | 49 | 16 | 32 | 54 | 19 | 36.00 |
| Company's Industry Info | 54 | 35 | 38 | 68 | 42 | 53 | 80 | 54 | 53.00 |
| Forward-thinking Info | 55 | 33 | 51 | 66 | 51 | 53 | 78 | 36 | 52.88 |
| **Aggregated Average (%)** | **64** | **33** | **53** | **60** | **45** | **55** | **74** | **44** | **54%** |

**Source:** *Corporate disclosed (2020-2021) NFI items as a percentage of index items.*
**Notes:** Some adjustments are done to get round figures in the percentages.
Bank: Banking; Engg.: Engineering; NFI: Non-banking Financial Institutions; FP: Fuel & Power; FA: Food & Allied; Ins.: Insurance; PC: Pharmaceuticals and Chemicals; Tex.: Textile.

The above Table-2 reports that the average nonfinancial information disclosure in the sample companies is at moderate level with 54%. It also indicates that, in the sample companies' annual reports, the utmost disclosures were under the categories of Company Strategy, Overall Company Information, Company Governance, and Risk & Trend Information (with about 68% under all four categories).

### 6.3 Regression Model Hypotheses Testing

Since share price is the indicator for wealth maximization of corporate shareholders, the main objective of a company is to maximize the wealth of its shareholders. So, any such positive impact between share price and nonfinancial information disclosure would ultimately be caused for encouraging the companies to release more nonfinancial information in their annual reports.

#### 6.3.1 The Value Relevance Model

The above-mentioned hypotheses are examined by employing the Ohlson's (1995) value relevance model, adjusted to adopt the effect of nonfinancial

information releases. The model would help, as well, in measuring the association of nonfinancial information disclosure with share price.

### 6.3.2 Dataset for Testing the Value Relevance Model

The data-set used for testing the model includes share price, earning per share, book value per share and nonfinancial information disclosure score. Among the four types of data, share price is regarded as dependent variable and earning per share, book value per share as well as nonfinancial information disclosures are considered as independent variables for multiple regression analysis.

## 6.4 Assumptions Tests for the Value Relevance Regression Model

There are four key assumptions which validate the practice of multiple-linear regression model for the drive of prediction and rationality of any conclusion articulated. However, all assumptions are not appropriate for the data study of this research. Similar, the assumption of no autocorrelation is inappropriate as the data set is not time series rather cross-sectional (Berenson et al., 2005). However, possible multicollinearity of the independent variables, one of the vital difficulties in the use of multiple regression, is added to the tests of principal assumptions. The discussions for the assumption-tests with results are outlined below:

### 6.4.1 Linearity

Residual plots make it easy to check the linearity of a bivariate relationship. The regression residual is the difference between the factual and the anticipated dependent variable values (Wooldridge, 2002). The residual plots should evenly be dispersed around a diagonal line (Hair et al., 2006). A normal P-P plot of regression residuals (Appendix-2), a graphical tool, was used to test the linearity of the regression equation employed in this research work. The symmetrical distribution around a diagonal line was then cautiously watched. No insights were presented opposite to the linearity assumption.

### 6.4.2 Normality

The normal distribution creates a straight diagonal line and the plotted residuals are compared with the diagonal. If the distribution is normal, the residuals carefully follow the diagonal (Hair et al., 2006). Placing the residuals against the dependent variable values and comparing them to the diagonal line showed a consistent pattern in the scatter plot as shown in the Appendix-2 of this study. In accordance with the result for the test of normality assumption, it can be deduced that the dataset of this study is well qualified for linear regression analysis.

### 6.4.3 Homoscedasticity (No Heteroscedasticity)

Heteroscedasticity (i.e., violation of homoscedasticity) implies a condition in which the change of the dependent variable differs across the data. The Breusch-Pagan (BP) test was conducted to confirm that there is no heteroscedasticity problem with the regression model. For this drive, a new regression was run where square of residuals was dependent variable together with the same independent variables of the initial model. At that point, it was got F-statistic (probability) value of 0.1055 that was bigger than 0.05 (at 5% significance level). Thus, the null hypothesis of homoskedasticity could not have been rejected. Hence, there was no prove for hetroscedasticity issue in the regression model of this study.

### 6.4.4 No Multicollinearity

Multicollinearity occurs when two or more of the independent variables are connected. The result is that the specific p values of the variables can be confusing, driving to high p-values even in spite of the fact that the variable is critical. To take note of any multicollinearity problem, the correlation-coefficients of the independent variables were computed and their significances were also considered before modeling the multiple regression equation. In order to find out the coefficients, *Pearson's Correlation* test was adopted because of the earlier findings for normally distributed observed data of the variables. The test results are exhibited in the Table-3 below.

**Table 3: Pearson's Correlation Coefficients of Independent Variables**

| Independent Variables for Regression Equation | Earning Per Share | Book Value Per Share |
|---|---|---|
| Book Value Per Share | - 0.192<br>(0.056) | 1<br>. |
| Nonfinancial Information score | - 0.001<br>(0.988) | - 0.128<br>(0.204) |

**Source:** *Output of bivariate correlate test*
**Note:** Numbers in the parentheses represent p-values (2-tailed sig.)

The above table reports that independent variables are not significantly correlated at 5% level. All the probability values are more than 0.05 for 2-tailed significance. As a result, the multicollinearity problem does not exist in the dataset used for multiple regression equation of this study.

## 7. Hypotheses Testing

The foremost purposes of this study are to test the need for disclosing more nonfinancial information (NFI) in corporate annual reports and the value relevance of disclosing such information along with financial disclosures. These are tested by employing the Ohlson's (1995) value relevance model, improved however the model to cover the effect of nonfinancial information releases. The modified regression model following the research hypotheses is as follows.

The 1st hypothesis: *There is a positive connection between share price and nonfinancial information releases.*

The 2nd hypothesis: *There is a value relevance of nonfinancial information along with financial information releases.*

Regression model: Value relevance of NFI with financial disclosures

$$SP_{it} = \alpha_0 + \alpha_1 EPS_i + \alpha_2 BVS_i + \alpha_3 NFI_i + €$$

The above model considers Share Price (SP) as dependent variable and Earning per Share (EPS), Book Value per Share (BVS) as well as NonFinancial Information (NFI) score as independent variables. This study regressed share price on independent variables of EPS, BVS and NFI score. The results for

regression of the model are presented in the Table-4 below and discussed in the following part.

**Table 4: Output for Model**

Dependent Variable: Share Price ; Method: OLS ; Included observations: 101

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| Constant | 12.013 | 6.029 | 1.992 | 0.049 |
| Earnings Per Share | 1.533 | 0.560 | 2.738 | 0.007 |
| Book Value Per Share | 0.203 | 0.029 | 7.102 | 0.000 |
| Nonfinancial Information Score | 0.218 | 0.094 | 2.321 | 0.022 |
| R-squared | 0.361 | F-statistic | | 18.111 |
| Adjusted R-squared | 0.341 | Prob. (F-statistic) | | 0.000 |

**Source:** output using Bangladeshi companies' data of 2020-2021

R-squared value of 0.361 means that 31.6% variation in the dependent variable is described by the independent variables. Further, reasonable explanatory power of the model is stated because of 34.1% as adjusted R-squared. Moreover, each of the t values is more than the table value of 1.96 at 5% level of significance. Hence, following equation can be derived from the aftermath of regression analysis using the coefficients exhibited in the table 4 above and the equation can be used to estimate the share prices of Bangladeshi companies.

Estimated equation: Value relevance of NFI with financial disclosures

$$SP_{it} = \underset{(0.049)}{12.013} + \underset{(0.007)}{1.533}\ EPS_i + \underset{(0.000)}{0.203}\ BVS_i + \underset{(0.022)}{0.218}\ NFI_i + \epsilon_i$$

**Source:** equation derived by using full sample Bangladeshi companies' data (2020-2021)

[ Numbers in the parentheses represent p-values ]

The above estimated equation for the value relevance of financial along with nonfinancial information reports that the coefficient of *NFI* is positive and statistically significant as probability value of 0.022 is less than 0.05 at 5% level. Therefore, the first research hypothesis of *positive association between share price and nonfinancial* information *disclosures* is accepted. This indicates

that disclosing more nonfinancial information has positive impact on share price.

Indeed, all the coefficients of independent variables and constant are statistically significant as their p-values are less than 0.05. The estimated coefficients of financial information including earning per share and book value are statistically significant at 1% percent level. However, estimated coefficient of nonfinancial information score is statistically significant at 5% level. Furthermore, the F-statistic applied to examine the total fit of the model is 18.111 (as shown in the Table-4 above) which is highly significant with p-value at 1% level. The coefficients of all independent variables have positive signs, indicating that they are positively correlated with share prices. In a nutshell, increasing share prices of Bangladeshi companies can be the result of their disclosing more financial along with nonfinancial information. As a result, the second hypothesis of *value relevance of nonfinancial information along with financial information* is accepted.

## 8. Research Findings

The results of this study revealed that financial information is more value relevant than nonfinancial information. The statistical significances, as shown by p-values, were at 1% in the multiple regression model that tested financial information including earning per share and book value per share. The finding of higher value relevance of financial information offers support for Francis and Schipper's (1999) research. Further, the results proved the fact that nonfinancial information disclosures are also value relevant for Bangladeshi companies. This finding gives support for the past US and Australian studies, supporting the inference that investors would perhaps progressively depend upon additional information sources (Brimble and Hodgson, 2007; Brown et al., 1999; Collins et al., 1997; Francis and Schipper, 1999).

The outcomes of value relevance of financial along with nonfinancial information disclosures are consistent with prior studies. For instance, the finding is similar with Amir and Lev's (1996) study indicating the complementarities between financial and nonfinancial information materials.

Further, the result is reliable to Han and Manry (2004), who observed that the market may take the information about Research & Development (R&D) (i.e., a type of nonfinancial information) whether expended or capitalized, creating release is vital for value creation. In addition, Franzen and Radhakrishnan (2009) as well as Wu et al. (2010) testified R&D cost as positively related with share price. The findings of this study also in favor of the results of Ritter and Wells (2006) and Dahmash et al. (2009). Ritter and Wells (2006) specified that there was an important relationship between identifiable intangible asset disclosures (also regarded as nonfinancial information category) and share prices in an Australian research study from 1979 to 1997. Dahmash et al. (2009) confirmed that information given with regard to intangible assets in Australia for the ten-year period from 1994 to 2003 are value relevant. Results of the current study fortify prior research outcomes with the result that there are significant nonfinancial information releases in the corporate annual reports and that those releases are value relevant for the market.

## 9. Contribution of the Study

This study could lead the way to guide corporate management with a view to improving disclosure practices in annual reports. The major outcome of this study for value relevance of nonfinancial information is a worthy input to the advancement of reporting more such information in the corporate annual reports. Such a comprehensive corporate reporting practice may lead to additional fund supply to capital markets by delivering extra relevant information to the prospective investors. Thus, an effective distribution of funds in the capital markets will be augmented by recognizing additional type of challenging information in the corporate reporting practice in addition to financial information.

## 10. Limitations of the Study

This study collected corporate data for a single period (i.e., cross sectional dataset) from merely 8 industry sectors and of the companies listed only with Dhaka Stock Exchange (DSE) in Bangladesh. The said sample collection boundaries may limit the generalization of findings of this study to the entire listed companies of Bangladesh. Furthermore, this study considered corporate

annual report as the only source in case of examining corporate disclosure of NFI. Though annual reports can primarily be taken as the utmost formal part of providing corporate information, the reality that other sources (such as press release, website, etc.) have been ignored. This can also be regarded as limitation of the study. An un-weighted approach was used in this study on scoring corporate NFI disclosures with a supposition that all NFI materials are similarly important, which may not essentially be correct. Though it is a debatable issue of providing different weights for different categories of NFI items, the non-consideration of weighted approach is another limitation to the study.

## 11. Conclusion, Recommendations and Future Research Directions

This study increases the understanding of relevance for nonfinancial information reporting. In this study, extents of disclosing nonfinancial information by Bangladeshi sample companies were examined using researcher-constructed a disclosure index. Bangladeshi sample companies have disclosed, on an average, 54% of the nonfinancial information materials included under the researcher constructed index. Thus, the companies are disclosing moderate level of nonfinancial information materials in their annual reports. Perhaps, the companies are not convinced enough for revealing additional nonfinancial information in their annual reports. Again, financial information cannot be ignored any way according to the prior literature discussion. Therefore, the main issue addressed in this study is whether nonfinancial along with financial information is value relevant for Bangladeshi companies. Or, in other words, whether that information can positively affect share prices of respective companies. In the experimental analysis of this study, the broadly used Ohlson (1995) model was employed. The model was improved to match the objective of this study by incorporating *NFI disclosure score* in replacing with *additional information* variable. The model has been modified to enable capturing the impact of nonfinancial along with financial information disclosures on corporate share price. In particular, corporate disclosure score for NFI has been introduced as a third variable in place with ‘additional information’ to the initial model. This adjustment can be regarded as a unique input to this study on corporate information disclosures. The overall results provided in this study

evidence that financial information including earning and book value per share are the major variables while nonfinancial information is the least but considerable variable in determining the share prices of Bangladeshi companies. Thus, it has been proved in this research that there is a need for disclosing more nonfinancial along with financial information in the corporate annual reports of Bangladesh. The finding of this study delivers support for preceding US and Australian researches and the deduction that investors perhaps progressively depend upon additional information for investment decision making. The value relevance of nonfinancial information releases of the present study is somewhat similar with the study of Haddad et al. (2009) where there is a positive relation between level of voluntary information releases and share market liquidity. Further, nonfinancial information disclosures on which this study has concentrated are mostly voluntarily in nature. So, Bangladeshi companies should take necessary steps for disclosing more relevant nonfinancial information so that they would maximize the wealth of their shareholders by having additional increases in the share prices and thereby engender stakeholders' loyalties in the long run. The limitations of this study can highlight potential future research emphasizing on inclusion of the small industry sectors along with big industry sectors in examining corporate data for several periods with a view to analyzing for time series.

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# Appendices

## Appendix 1: Index for Nonfinancial Information Materials

**I. Information about Company Strategy**

1. Company goals, objectives and strategies
2. Explanation for employee motivation (financial and/or nonfinancial) plan
3. Tactical information for business growth/expansion

**II. Overall Company Information**

4. Company mission and vision
5. Date of establishment more especially listing with stock exchange date
6. Short explanation for company activities comprising of its major service/ product
7. Authorized address/listed address/corresponding address
8. Prime organizational chart/structure
9. Important matters during the year
10. Summarized past history of the company
11. Company networks and its economic and political settings
12. Common economic information
13. Company success and its input to the domestic economy

**III. Company Governance Information**

14. Size and structure of the board of directors
15. Nomination/selection procedure of the board Directors
16. No. of shares owned by each of the directors
17. Details of the independent director(s)
18. Background (education, profession and business experience) of the directors
19. Directors' associations with other companies
20. Director's report insight
21. Particulars of the company chairman
22. Nomination/selection status of the chairman and the CEO
23. Information about the CEO (Chief Executive officer)
24. Executive directors' functions and their roles
25. Auditor selection, rotation and audit fee
26. Corporate code of conduct
27. Audit committee information
28. Auditing procedure and management control system
29. Credentials of head of internal audit, company secretary and chief financial officer
30. List of high officials/senior managers
31. Senior management compensation package
32. Professional expertise of the senior executives

**IV. Company's Risk and Trend Information**

33. Business risk statistics and risk management framework
34. Facts on current year business growth
35. Cause(s) of varying company's financial flexibility
36. Significant trends and prospects
37. Cause(s) of varying company's prevailing economic condition
38. Justification for associations and variations in data

**V. Client/Customer Gratification Information**

39. Variety of service or product information
40. Product fault, maintenance, return or despair of service information
41. Information on service excellence or product security
42. Client gratification and withholding plus principal customers' information
43. Brand insight and market status
44. Information on service or product improvement
45. Marketing drive(s) success

**VI. Supply Chain Information**

46. Information about supply of product/service availability
47. Information about service or product safety/security from its provider
48. Information about supplier, broker, dealer, and service provider

**VII. Environmental and Societal Information**

49. Supporting public program and community events
50. Sponsoring charitable entities
51. Taken environmental action/drive
52. Funding community health, games or entertaining schemes
53. Donations to government-backed agencies

**VIII. Intangible Asset Information**

54. Information about management excellence
55. Notable brand, license, patent/copyright information
56. Information about employee expertise
57. Information about service grade or brand status

**IX. Human Capital Information**

58. Occupational health and security
59. Workplace culture for the employees
60. Employee/Human rights information
61. Employee retention and commitment
62. Employee growth and Development

**X. Company's Industry Information**

63. Sustainable competitive advantage and unfavorable business position
64. Company's associations with others

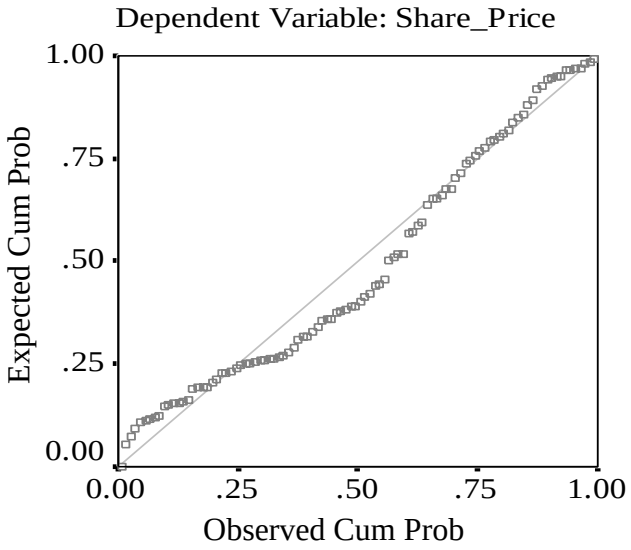
65. Technology and competition changes in the market
66. Market structure of the company
67. Company ranking position and market share in its industry
68. Development or shrinking in the market share
69. Company's competitors and their rankings in the industry

**XI. Company's Forward-thinking Information**

70. Qualitative forecasting of profits, sales and cash flow
71. Issues that may lead to the future performance
72. Plan for marketing and distribution method
73. Potential information about predicting the data
74. Trend forecasting research and development

## Appendix 2: Test Results for Regression Assumptions

**Linearity Assumption for Regression Equation Test**
***Normal P-P Plot of the Regression Residuals***



**Normality Assumption for Regression Equation Test**
***Scatter Plot for Residuals and Dependent Variable***