Determinants of IAS disclosure compliance in emerging economies: Evidence from exchange-listed companies in Bangladesh

A K M Waresul Karim[a] and Jamal Uddin Ahmed[b]

[a] A K M Waresul Karim, School of Accounting and Commercial Law,
Victoria University of Wellington, PO Box 600, Wellington, New Zealand*

[b] Jamal Uddin Ahmed, Senior Partner, Hoda Vasi Chowdury & Co., Dhaka, Bangladesh

*Correspondence to: A K M Waresul Karim, School of Accounting and Commercial Law,
Victoria University of Wellington, PO Box 600, Wellington, New Zealand

Email: wares.karim@vuw.ac.nz
Tel: ++(64)(4) 463 8547
Fax: ++(64)(4) 463 5076

Determinants of IAS disclosure compliance in emerging economies: Evidence from exchange-listed companies in Bangladesh

A K M Waresul Karim

School of Accounting and Commercial Law, Victoria University of Wellington

Jamal Uddin Ahmed

Hoda Vasi Chowdury & Co., Dhaka, Bangladesh

Provision of Corporate Financial Information Under IASs: Evidence from Listed Companies in Bangladesh

Abstract

The study is an attempt to examine empirically the level of disclosure of financial information upon adoption of International Accounting Standards (IASs) in Bangladesh and the association between a number of corporate attributes and levels of disclosure in corporate annual reports in Bangladesh. An unweighted disclosure index comprising 411 items was prepared and applied to 188 corporate annual reports for years ending between January and December 2003. The association between the extent of disclosure and various corporate characteristics was examined using multiple linear regression models. It was found that corporate size, profitability, stock exchange security category (Z-category or not), size and international link of company's auditor, and multinational subsidiary are all significantly associated with the extent of disclosure. The results were consistent with some previous studies while they contradict with the findings of some other studies.

Provision of Corporate Financial Information Under IASs: Evidence from Listed Companies in Bangladesh

1 Introduction

The disclosure of financial information in corporate annual reports and their determinants has attracted considerable attention in the West, but, there has been much less concern in developing countries. Only a handful of work have been carried out in developing countries on the issues of disclosure and its determinants. Therefore, very little is known about the degree of disclosure and corporate attributes influencing it. The aim of this paper is to analyse the extent of disclosure in company annual reports and examine if such disclosure is associated with any corporate attributes.

With this aim in view, the rest of the paper is organised as follows. Section 2 provides a review of the relevant literature, Section 3 outlines the research design, Section 4 sets out the hypothesis of the study, Section 5 describes the dependent and explanatory variables, Section 6 presents the results of the regressions with the dependent variable being the overall disclosure, first encompassing <u>all listed companies</u> in the sample and second, using data of the <u>non-financial companies</u> only, Section 7 outlines the tests carried out to test the validity and stability of the models developed in the paper, and finally, Section 8 summarises the findings of the study and draws conclusion.

2 Empirical Studies on the Extent of Disclosure and Variables Associated with Different Disclosure Levels

This section reviews research that has focused primarily on disclosure of information in corporate annual reports. The approach generally used has been to determine the extent to which specific items of information are disclosed in corporate annual reports. A disclosure index is constructed based either on a user survey or on a search of the corporate reporting literature. The disclosure index is then used to measure the extent of disclosure in the annual reports of a sample of companies. Both weighted and unweighted disclosure

indices were found to have been used. In some instances weights are decided by the researcher(s) after consultation with selected users and a review of literature and in other cases weights are derived from the responses to questionnaires containing information items seeking to establish the importance of the information items as perceived by the users.

Cerf (1961) pioneered the study in this area examining 527 corporate annual reports against a disclosure index comprising thirty one information items. He found that level of disclosure was (positively) associated with corporate size and listing status but not with profitability. Modifying Cerf index, Singhvi (1967) found that disclosure quality was associated with asset size, number of stockholders, rate of return, earnings margin, security price fluctuations, listing status, and CPA firm. Buzby (1975) found that the extent of disclosure was positively associated with company size but not with listing status. Choi (1973) found that firms significantly improved their disclosure levels upon entry into the European capital market. Barrett (1977) examined changes in the average disclosure levels over a ten-year period from 1963 to 1972 and comprehensiveness of financial statements across countries. He reported a steady improvement in the overall level of corporate disclosure for firms during the period. British and American firms have shown significantly higher level of disclosure than any of the other five countries of the study. On a sample of 80 US company annual reports Stanga (1976) found that size was not significant in explaining disclosure variability while industry type was. Belkaoui and Kahl (1978) found that size, liquidity, and industry type were positively associated with disclosure while profitability and capitalisation ratio were negatively associated with it. Spero (1979) found that companies disclosing more important items also disclosed less important items and vice-versa. Firth (1979) found that corporate size was linked to disclosure levels but audit firm size was not. Kahl and Belkaoui (1981) found that the degree of disclosure was relatively different across countries with U.S. leading the list of 18 countries in their study. McNally, Eng, and Hasseldine (1982) found a significant relationship between company size and disclosure but no association between disclosure and rate of return, growth, industry sectors and the size (Big Eight and non-Big Eight) of audit firms. Cooke (1992) found that disclosure increases with size, industry type and multiple listings.

Singhvi (1967 and 1968) pioneered research on corporate disclosure in developing companies. Using a disclosure index comprising 38 items he found that disclosure was

associated with size, profitability and managers' country of origin. Singh and Gupta (1977) replicated Singhvi's method to test the influence of factors such as industry sector, affiliation with multinational enterprise and stock exchange listing on extent of disclosure. Singh's (1983) findings suggest an association between corporate size, profitability and the extent of disclosure while age and industry were not significant in majority of the studies. Chow and Wong-Boren (1987) found that the level of voluntary corporate disclosure increased with firm size but not with financial leverage or 'assets in place'. Pradhan (1990) found a positive correlation between size (both sales and assets) and disclosure, negative correlation between EPS and disclosure and an overall improvement in disclosure during the period 1981 to 1985 in India. Benjamin *et al* (1990) found that large and small firms have fewer non-compliance to disclosure regulations than medium-sized firms. No significant association between industry, auditor size and non-compliance was found. Khandewal (1991) found that disclosure levels were not significantly different between years but that they varied significantly across companies. Abayo and Roberts (1993) found no significant difference in the disclosure quality of companies employing and not employing qualified accountants, although for voluntary disclosures the differences were significant at 10% suggesting a weak link between voluntary disclosure levels and the employment of qualified accountants.

Wallace (1987) found a positive association between the type of management influence and the extent of statutory disclosure and a positive influence of asset size on overall disclosure in Nigeria. Parry (1989) and Parry and Groves (1990) explored potential linkage between accounting and economic development. Their results revealed an inverse relationship between disclosure levels and size and the company being a multinational subsidiary. They found no association between disclosure levels and the presence of qualified accountant(s) in the entities. Ahmed and Nicholls (1994) find that subsidiaries of multinational companies and companies audited by large audit firms showed higher degree of compliance to disclosure requirements while the accountant's qualification in the reporting company had weak influence (significant at 10%) on such compliance. In another study on Bangladeshi companies Ahmed (1996) found that multinationality and auditor size were significant predictors of disclosure levels but size, total debt, and qualification of principal accounting officer were not. The results support the findings of Parry and Groves with regard to the accountant's qualification variable.

In a Malaysian study on voluntary disclosure, Hossain et al (1994) found that firm size, ownership structure and foreign listing status were significant in explaining level of voluntary disclosure. However, they did not find any evidence to support any association between disclosure levels and leverage, assets in place and auditor size. In a study of voluntary disclosure by Swiss listed firms, Raffournier (1995) found that firm size and firms' internationality level are significant determinants of the extent of disclosure. However, auditor size, leverage, profitability, proportion of fixed assets to total assets, ownership structure, and industry type were not found to be statistically significant. In an alternative model excluding the size variable, internationality, profitability (at 5%), and auditor size (at 10%) were found to be significant. In another European study, Patton and Zelenka (1997) used three indices of disclosure - narrow, somewhat broad, and broad. They found that auditor size and number of employees were significant across all three indices while listing status was significant in the narrow and somewhat broad models. The firm size variable, log of assets and leverage were not found to be significant in any of the three models. Wallace, Naser and Mora (1994) found that firm size and listing status are positively associated with disclosure comprehensiveness. Liquidity was found to be negatively associated with disclosure levels in the reduced model but insignificant in the full model. Gearing, earnings, industry, and auditor size were not significant either. In another Spanish study, Inchausti (1997) found that firm size, auditor size, and stock exchange listing were positively and profitability was negatively associated with disclosure levels. Although claimed, the study did not seem to have been able to identify the influence of accounting regulation on disclosure.

Wallace and Naser (1995), in a study of Hong Kong listed firms, found that firm size, auditor size, and scope of activities (i.e., being a conglomerate or not) were positively associated with disclosure comprehensiveness while profit margin was surprisingly found to be negatively associated. In a Zimbabwean study, Owusu-Ansah (1998) has found that company size, ownership structure, company age, MNC affiliation, and profitability were significantly positively associated with disclosure levels. The use of company age as a possible explanatory variable is unique to this study but appears to be the only predictor od disclosure level in all four models run in the study. A recent study on corporate disclosure made by Chinese listed companies reported by Xiao (1999) makes a descriptive analysis of 10 categories of information in annual reports of 13 companies. It was reported that the general level of compliance was satisfactory in the sample studied. In another recent study on the

quality of financial reporting of Saudi non-financial companies, Naser and Nuseibeh (2003) report a relatively high compliance with mandatory disclosure requirements across all industry sectors except the electricity industry. However, they find a relatively low level of voluntary disclosure in their sample firms. An important finding of the study is its finding that the creation of Saudi Organization of Certified Public Accountants (SOCPA) had little impact on corporate reporting in the country. In a multinational study of the determinants of corporate disclosure, Archambault and Archambault (2003) test the influence of a number of cultural, national, and corporate factors on firms' disclosure decisions. Their results indicate that the financial-disclosure decision for a company is complex and influenced by a range of cultural, political, economic, and corporate factors. The most recent study on corporate disclosure is carried out by Owusu-Ansah and Yeoh (2005) who examined the effect of legislation on corporate disclosure practices. They report that the levels of corporate disclosure compliance have improved upon implementation of the Financial Reporting Act 1993 in New Zealand.

3 Research Design

A total of 188 companies, listed on the Dhaka and Chittagong Stock Exchanges were included in the study. Among the companies included in the sample, 7 are subsidiaries of multinational enterprises, 47 operating in the financial services sector of which 27 are banks and the remaining, 20, are insurance companies.

A disclosure index was constructed based on a thorough and rigorous study of the existing regulatory frameowrok for listed companies and an examination of the IASs adopted in Bangladesh until December 2002. The components of the regulatory framework examined included the Companies Act 1994, the Securities and Exchange Rules 1987, the Banking Companies Act of 1991, and Bangladesh Bank's Banking Regulatory and Policy Department (BRPD) circulars issued from time to time (for banks only). The index was applied to 2003 annual reports (accounting period ending any time between January and December 2003) of the sample companies. The disclosure index comprised items relevant to the five major parts

of the annual report. Table 1 shows the number of items relevant to each of those parts of an annual report.

Table 1: Distribution of the Index Items into Different Parts of Annual Report

Major Parts of Annual Report	Total
Company profile	38
Highlights statement	24
Graphical presentation	11
Directors' report	28
Corporate environmental information	7
Balance Sheet	29
Income Statement	20
Cash Flow Statement	17
Retained Earnings Statement	6
Accounting Policies and Notes to Accounts	164
Other information	67
Total	411

Disclosure was operationally defined as the appearance of an item of information in the annual reports of the companies under study. A company was initially awarded a score of 1 if an item was disclosed and 0 if the item was not disclosed. The total number of items disclosed by a company was then divided by the total number of items applicable to the company and the result was used as the index of disclosure – Overall Disclosure Index (ODI).

A number of firm-specific variables were identified from the individual annual reports and other secondary sources including the Stock Exchange Bulletin of the Dhaka Stock Exchange. The rationale of using each of the explanatory variables and the operationalization scheme of each variable is outlined in Section 5.

4 Hypothesis of the Study

The primary aim of the study, as mentioned earlier, is to examine the association between the extent of information disclosure in published annual reports of companies and a number of corporate attributes. The expected association is examined by testing the following hypothesis:

H0: *There is no significant association between a number of corporate attributes (viz. size, profitability, leverage, size and international link of the audit firm, multinationality, employment of qualified accountant(s), belonging to financial or non-financial sector, market category), and the extent of disclosure.*

The analysis is carried out at two levels. At the first level, all the companies in the sample are considered in order to develop a model representing both financial and non-financial companies. At the second level, only non-financial companies were considered in order to examine the possible effect of gearing on disclosure levels. The gearing ratio was not calculable for banks and insurance companies because the concept of debt and equity for banks and insurance companies is different from that of non-financial companies.

The multiple linear regression technique is used to test the hypothesis. Two models are created one based on the combined sample and the other based on the non-financial companies only. The explanatory variables are the same except the addition of a gearing variable (LEVERAGE) in the model for non-financial companies.

5 The Dependent and Explanatory Variables

Dependent Variable: Disclosure scores are calculated for each company and used as the dependent variables in the regressions. The overall disclosure index (ODI) for each company is obtained initially by using a dichotomous procedure whereby the total score received by a company is equal to the number of items disclosed in its annual report and then by calculating the ratio of items disclosed and the number of items applicable to each company. The normality of the distribution of the index scores was tested using the normality plot and histogram and both were found to be normally distributed.

<u>Explanatory Variables:</u>

The procedure for operationalising the variables in the regression analysis and the rationale for expecting them to explain disclosure variability are outlined in the following paragraphs.

Size: The size of the reporting company has been a major variable in most studies examining disclosure variability (see Section 2). With the exception of Spero (1979) and Stanga (1976), all the studies found that corporate size significantly explains disclosure levels and variability.

Corporate size can be measured in a number of different ways and there is no overriding reason to prefer one to the other(s) (Cooke, 1991). Several measures of size were available to this researcher including: annual sales, total assets, fixed assets, paid up capital, shareholders equity, capital employed, and the market value of the firm. After a primary examination based on the correlation between the dependent variable and the available size variables, it was decided to drop all but three size variables which included annual sales, total assets, and market value of the firm. None of the size variables were normally distributed and as expected, they were found to be highly correlated among each other. The problem of non-normality was averted by computing the natural log of all the size variables which produced normality of the distributions and since they were highly correlated with each other, one of them was selected on the basis of correlation coefficients with the dependent variable. The correlation coefficients between sales and the weighted and unweighted disclosures are higher than those between assets and disclosure measures and so, the log of sales (LOGSALES) is used consistently in the disclosure models as the size variable.

Profitability: Corporate profitability affects disclosure in many ways. Studies on the understandability of financial statement messages found that narrative disclosures in corporate annual reports are deliberately made complex to communicate bad news and made more lucid and easily understandable to communicate good news (Adelberg, 1979). Companies are likely to feel more comfortable when disclosing favourable rather than

unfavourable information, because one of the objectives of information disclosure is to increase share prices. Higher than expected profits tend to be good news for investors and other corporate stakeholders unless the company is a regulated utility.

Profitability was used as an explanatory variable by Cerf (1961), Singhvi (1967), Singhvi and Desai (1971), Belkaoui and Kahl (1978), Spero (1979) and Wallace (1987). Cerf (1961), Singhvi (1967), Singhvi and Desai (1971) found positive association between profitability and disclosure while Belkaoui and Kahl (1978) found a negative association between them. A number of profitability measures were used by previous researchers. They include net profit to sales, earnings growth, dividend growth and dividend stability (Cerf, 1961), rate of return and earnings margin (Singhvi, 1967 and Singhvi and Desai, 1971), and return on assets (Belkaoui and Kahl, 1978). In this study, a number of profitability measures were computed from the annual report data, but net profit to sales ratio was selected for the analysis. The net profit to sales ratios for banks and insurance companies were calculated by dividing net profit by interest income and total premium income respectively. The reasons for selecting this variable as the profitability measure are as follows. First, many market-based measures of profitability like price-earning ratio are not calculable for companies not quoted on the stock exchange. Second, dividend-based measures could not be used because many companies in the sample were found to have earned profits but to have paid no dividends during the period under study. Thirdly, equity-based measures like return on equity (ROE) and return on capital employed (ROCE) were not available for many companies in the public sector as they have no authorised or paid up capital as such. These problems limited the choice of profitability measures to: net profit to sales, return on total assets, and return on fixed assets. The correlation coefficients of all three measures showed that the return on equity (ROE) had the highest correlation with the dependent variable and so it was used as the profitability measure in the regression models and is labelled ROE.

Leverage: The degree to which a firm's financial structure is geared has been used in a few disclosure studies to examine if there exists any association between gearing ratio and disclosure levels. Chow and Wong-Boren (1987) and Ahmed and Nicholls (1994) found no significant association between leverage ratio and the extent of voluntary disclosure in Mexico and Bangladesh respectively while Belkaoui and Kahl (1978) observed a significant negative relationship between the two variables. On the other hand, Robbins and Austin

(1986) found a significant positive association between debt and municipal disclosure. The debt-equity ratio is used in the present study as the measure of leverage but, due to difficulties in computing the ratio for financial institutions, the variable was used only for non-financial companies. Some other leverage measures were also computed such as debt to total assets, total debt as used by Ahmed and Nicholls (1994), and capital gearing ratio. The debt-equity ratio was selected for analysis because it showed the highest correlation with the dependent variable. The variable is labelled LEVERAGE.

Size of the Audit Firm & its International Link: The size of the company's audit firm and/or its international link is believed to influence the amount and quality of information disclosed in annual reports. It is expected that in countries where the Big-Four audit firms operate, financial statements certified by any Big-Four firm carry more credibility than those audited by non-Big-Four firms. Studies on audit delays have observed that clients of larger audit firms are able to publish their annual reports much earlier than the clients of smaller audit firms. DeAngelo (1981) argued that larger audit firms invest more to maintain the reputation of their audit quality. Haque (1984) suggested that in Bangladesh, only large audit firms enjoy the privilege of choosing the clients and the audit job. Many disclosure studies examined the potential association between the auditor size and extent of disclosure. Among them Singhvi and Desai (1971) and Ahmed and Nicholls (1994) found positive association between audit firm size and the extent of disclosure.

In Bangladesh, none of the Big-Four audit firms have a named branch. However, some of the larger Bangladeshi firms claim affiliations with the international Big-Four. These few big firms are responsible for auditing most of the big companies in the private sector and almost all the multinational companies operating in Bangladesh. In the present study, both size and international link of audit firms were considered for use as explanatory variables, but there was no obvious cut-off point for firm size. Moreover, since information on the audit firms' international links was available, it was considered a more objective measure of audit quality than using any arbitrary measure of auditor size. Therefore, two criteria were used to capture audit-firm size and quality. They were: number of chartered accountants (partners and employees) employed by an audit firm and the international link of the audit firm. The use of the above two criteria meant that the selected variable is capable of capturing both auditor size and the influence of international audit firms. Audit firms having four or more

chartered accountants (including partners) and an affiliation with an international Big-Four or a non Big-Four firm were treated as 'Big' and audit firms failing to meet either criteria were treated as non-Big firms in the context of Bangladesh. Six audit firms were found to have international links, five of which were with an international Big-Four firm and the remaining firm with a non-Big-Four firm. On the other hand, eight firms were found to have four or more chartered accountants, four of them having links with international Big-Four and one with an international non-Big-Four firm. Using both the criteria, five audit firms were found to be satisfying both the criteria. These five firms together audited 49 percent of the sample firms. In order to see if the auditor's international link and size had any impact on timeliness, this was considered for being used as an explanatory variable labelled AUDITOR. A dichotomous procedure was used to operationalise the variable awarding one if the company's audit firm was big and zero if it was not.

Influence of Multinational Parent: Subsidiaries of multinational corporations operating in developing countries are expected to disclose more information and observe higher standards of reporting for a number of reasons. First, they have to comply with the regulations of not only the host country but also the parent company where substantially higher standards of accounting and reporting are maintained. Second, they are usually equipped with more competent and efficient management and are more likely to have installed sophisticated accounting systems and so, they have the potential to disclose more information without any incremental processing costs. Third, they are under closer scrutiny by various political and pressure groups within the host country who view them as sources of economic exploitation and agents of imperialist power (Ahmed and Nicholls, 1994). Hence, they have an incentive to disclose more information in order to avert any pressure for excessive control or for expropriation. Wallace (1987) and Ahmed and Nicholls (1994) used multinational company influence as an explanatory variable in developing their models and the latter found it to be the most significant variable explaining disclosure levels. The influence of a multinational parent is operationalised by means of a dummy variable labelled MNCSUBSI with one for MNC subsidiaries and zero for domestic companies.

Employment of Qualified Accountant(s): This is a relatively new variable in disclosure studies. The qualification of the preparers may be seen as an important determinant of disclosure quality. Professionally qualified accountants are more likely to

pursue a policy of full disclosure than a non-professional accountant. In Bangladesh, the gap between qualified accountants and unqualified accountants is very wide in terms of knowledge and skills.

The accountant qualification variable was first used by Parry and Groves (1990) who found that there was no significant difference in the quality of disclosure between firms employing professionally qualified accountants and firms not employing them. They suggested that qualified accountants were not found to contribute to the improvement in the quality of financial reporting in the companies where they are employed. Subsequently, Abayo and Roberts (1993) included the variable in Tanzania and reached the conclusion that there was no evidence to suggest that corporations employing qualified accountants had a higher quality financial reporting system than corporations which did not employ any qualified accounting staff. However, Ahmed and Nicholls (1994) found that the qualification of the principal accounting officer of the reporting company did influence disclosure levels (at the 10% level). In the present study, the disclosure means on a crude means test showed higher disclosure averages for companies with qualified accountants than for companies without qualified accountants. The variable is captured by a dummy variable which has the value of one if the company employed one or more chartered accountant(s) and zero if no qualified accountants were employed by the company. The variable is labelled ACCOUNTT.

Financial or Non-Financial Sector: Some disclosure studies have concentrated solely on non-financial companies in developing their models (see for example, Wallace, 1987; Ahmed and Nicholls, 1994). The reasons for excluding financial companies are the rather different disclosure regulations applied in many countries to banks, insurance and investment companies, the unique nature of the transactions and the asset portfolio of such entities. In the current study, financial institutions are not excluded because they form a major part of the corporate structure in Bangladesh as a whole and of the Dhaka Stock Exchange (DSE) in particular. A dummy variable labelled FIN is used entering with the value of one if the company is from the financial sector and zero otherwise.

Market category: Recently DSE listed companies have been categorized into 3 categories-A, B, and Z based o their regularity of holding AGMs and/or payment of dividend. It is

expected that companies in the Z category are likely to have higher audit lags than those in the other two categories. The phenomenon is captured with a dummy variable with the value of 1 if it is in the Z category and 0 otherwise. The variable is labelled **mktcat1**.

6 Test of Hypothesis

The descriptive statistics for the explanatory and dependent variables are presented in Table 2. The skewness and kurtosis of the variables are also provided. The log transformations of sales meant that the distribution is now normal. Such log transformations or square root transformations are used by Ahmed and Nicholls (1994), Ashton *et al* (1989), Charles *et al* (1991) and others.

Table 2

Descriptive Statistics of the Dependent and Explanatory Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Overall Disclosure Index	188	.17	.63	.3975	.09709
Return on equity (ROE)	186	-1.72	9.09	. 1071	. 70407
Accountant	188	0	1	.33	.471
Market category	188	0	1	.26	.437
Size of audit firm	188	0	1	.34	.473
Log assets	188	.78	4.91	2.7762	.82723
Leverage	188	-63.090	17.078	.70274	5.588129
Financial services sector	188	0	1	.25	.434
MNC subsidiary	184	0	1	.04	.190

In the multiple linear regression analysis the proposed dependent and independent variables are the following:

Dependent Variables:

ODI = Overall Disclosure Index

Independent Variables:

Variable Label	Variable	Expected sign
AUDITOR	Large audit firms with an international link	+
LOGASSET	Natural log of total assets (in million Tk))	+
ROE	Return on assets (in million Tk)	+
MNCSUBSI	Subsidiary of a multinational company	+
ACCOUNTT	Qualified accountant employed	+
FIN	Financial sector company	?
LEVERAGE	Debt to equity ratio	+
MKTCAT	Market category	-

A correlation matrix of all the above explanatory variables along with the dependent variables was constructed which is shown in Table 3. The reasons for inclusion and/or exclusion of a variable has been detailed in the preceding section. So, the final model for aggregate disclosure based on the combined sample (both financial and non-financial) stands as follows:

The model based on the combined sample:

$$ODI = \alpha + \beta_1 \ LOGASSET + \beta_2 \ ROE + \beta_3 \ AUDITOR + \beta_4 \ MNCSUBSI + \beta_5 \ ACCOUNTT + \beta_6 \ FIN + \beta_7 \ MKTCAT + \varepsilon \ ....1$$

The model based on the non-financial services sector companies stands as:

$$ODI = \alpha + \beta_1 \ LOGASSET + \beta_2 \ ROE + \beta_3 \ AUDITOR + \beta_4 \ MNCSUBSI + \beta_5 \ ACCOUNTT + \beta_6 \ :EVERAGE + \beta_7 \ MKTCAT + \varepsilon \ ....2$$

Table 3

Correlation Matrix

	odi	roe	accountt	mktcat	safirm	logasset	leverage	fin	mncsubsi
odi	1.000								
roe	-.085	1.000							
accountt	.290***	.024	1.000						
mktcat	-.275***	-.005	-.346***	1.000					
safirm	.324***	.017	.471***	-.271***	1.000				
logasset	.315***	-.111	.295***	-.264***	.391***	1.000			
leverage	.191***	-.840***	.065*	-.187***	.145**	.263***	1.000		
fin	-.207***	.047	.084	-.258***	.169**	.491***	.062	1.000	
mncsubsi	.072	.041	.283***	-.134**	.274***	.125*	.006	-.098	1.000

Correlations
*** Correlation is significant at the 0.01 level (2-tailed).
** Correlation is significant at the 0.05 level (2-tailed).
* Correlation is significant at the 0.10 level (2-tailed).

6.1 Model Based on the Combined Sample

The model developed here is based on the combined sample of 188 companies. A summary of the regression output using the 'enter' method shown in Table 4. It was found that market category, size and international link of audit firms, logasset, financial services sector company, and mnc subsidiary, are all significantly associated with disclosure levels. This implies that the disclosure level was higher for a company whose security(ies) is(are) not categorized as Z-category scurities, which has larger assets, and whose accounts are audited by an audit firm which is big and has international links. On the other hand, the disclosure levels are significantly lower companies who are subsidiaries of multinational companies and who belong to the financial services sector.

Table 4

Summary of the regression output for the whole sample

Model 1

Coefficient of multiple regression	.603
Coefficient of determination (R Square)	.364
Adjusted R Square	.339
Standard Error	.07949

ANOVA

Sum of Squares	df	Mean Square	F	Sig.
.628	7	.08973	14.565	.000
1.097	178	.06160		
1.725	185			

a Predictors: (Constant), MNCSUB, ROE, MKTCAT01, FIN, SAFIRM, ACCOUNTT, LOGASSET
b Dependent Variable: ODI

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.276	.024		11.529	.000
ROE	9.335E-04	.008	.007	.111	.911
ACCOUNTT	1.465E-02	.015	.071	1.000	.319
MKTCAT	-4.507E-02	.014	-.205	-3.183	.002
SAFIRM	2.736E-02	.015	.134	1.824	.070
LOGASSET	5.445E-02	.009	.469	5.863	.000
FIN	-.116	.016	-.524	-7.199	.000
MNCSUB	-6.645E-02	.033	-.131	-2.035	.043

6.2 Model Based on Non-Financial Companies

The main purpose of concentrating on non-financial companies was to examine the effect of leverage on disclosure levels. The model developed here also serves the purpose of allowing comparison with other studies which looked exclusively at non-financial corporate entities (Ahmed and Nicholls, 1994; Cooke, 1990; and Wallace, 1987). Summaries of the Ordinary Least Square (OLS) regression procedures are presented in Tables 5. The model

includes the additional variable 'LEVERAGE' but drops the variable 'FIN' representing financial companies.

Table 5

Summary of Regression Output for the
non-financial sample

<u>Model 2</u>

Coefficient of multiple regression	.626
Coefficient of determination (R square)	.392
Adjusted R square	.359
Standard error	.08016

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Regression	.534	7	7.627E-02	11.869	.000
Residual	.829	129	6.426E-03		
Total	1.363	136			

a Predictors: (Constant), MNCSUB, LEVERAGE, MKTCAT01, SAFIRM, LOGASSET, ACCOUNTT, ROE
b Dependent Variable: ODI

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.281	.034		8.149	.000
ROE	3.952E-02	.019	.321	2.118	.036
ACCOUNTT	3.938E-02	.020	.182	1.958	.052
MKTCAT	-3.758E-02	.017	-.174	-2.239	.027
SAFIRM	1.954E-02	.019	.090	1.031	.304
LOGASSET	4.821E-02	.014	.317	3.532	.001
LEVERAGE	5.765E-03	.003	.364	2.306	.023
MNCSUB	-8.221E-02	.034	-.181	-2.406	.018

Table 5 shows that leverage is significant in explaining disclosure variability. The non-financial model (Model 2 above) suggests that companies with higher profitability (measured in terms of ROE), employing qualified accountants, having higher leverage ratios, and larger in asset size are likely to disclose more information in their annual reports. On the other hand, companies with Z-category listings and multinational subsidiaries are likely to have less disclosure.

7 Tests of the Regression Models

The models developed in this chapter have been tested for multicollinearity, heteroskedasticity, and stability. The tests and the results are presented in the following:

Test for multicollinearity: The following tests for multicollinearity were performed:

(i) The first was proposed by Haitovsky (1969) and was used by Anderson and Zeghal (1994). The test involves computing the ratio r_{ij}/R_y, where R_y represents the multiple correlation coefficient and r_{ij} is the zero-order partial correlation coefficients between all pairs of explanatory variables. A high value of r_{ij} and therefore a ratio of r_{ij}/R_y >1 represents a high degree of collinearity. The computations indicate that there is no existence of multicollinearity problem in the data. None of the values exceeded 1.

(ii) The second is found in the statistical package used to analyse the data and follows the approach of Belsey, Kuh and Welsch (1980). They are variance inflation factors (VIF) and condition numbers. Both the collinearity diagnostics have been calculated and none of them suggested any serious multicollinearity problems.

Tests for heteroskedasticity: If the residuals of a regression equation is found to follow certain trend instead of having a constant variance, heteroskedasticity problem is warranted. The following tests for detecting heteroskedasticity have been undertaken:

(i) The standardised, unstandardised, and studentised residuals have been plotted in histograms and all of them were found to be normally distributed.

(ii) The observed residuals have been plotted against expected probability plot and the observed residuals were found to follow the expected normal probability line.

(iii) The residuals were plotted against predicted values and all the continuous explanatory variables and there was no suggestion of any trend in the resultant scatterplots.

(iv) Finally, and most importantly, a formal test was carried out for detecting heteroskedasticity. The White's test involves regressing the squared residuals on the explanatory variables, their squared forms, and their joint products. The significance coefficient of the F statistics determines if the hypothesis of homoskedasticity can be accepted or rejected. The test was carried out for the residuals of all four models and the hypothesis of homoskedasticity could not be rejected for either of them. For example, the results of White's test on the combined model using the weighted index were as follows: R squared = .35470; F = .79872; and Sig. F = .8298.

Tests for stability: The stability of the models are tested using Chow test which involves splitting the sample into two subsamples and running the regressions separately for both the subsamples. In the present study, the sample was divided into two subsamples on the basis of the median of the variable logsales, and the regressions were run for both of them in all four models. No significant difference was found in the significant and insignificant variables across the sub-samples. Therefore, the results can be expected to remain valid across samples of companies from the same population.

8 Summary and Conclusion

This paper reported the results of multiple linear regressions of the association between a number of corporate attributes and the extent of disclosure in company annual reports. The extent of disclosure was measured using a comprehensive disclosure index. Two levels of analyses were carried out. First, taking all companies and then taking only non-financial companies into the model.

The results showed that disclosure levels are associated with some company characteristics. The variables that were found to be significant in determining disclosure levels of the combined sample are: size of audit firms in terms of the number of qualified accountants and with an international link, the size of the company (measured by log of assets), the existence of a multinational holding company, the company's profitability measured by ROE (non-financial sample), whether the company is in the financial services sector or not, and whether the company is categorized as a Z-category company by the Dhaka Stock Exchange.

The finding of mnc subsidiary to have a negative association with disclosure levels is somewhat counter-intuitive. It may be due to one or more of the following reasons: (i) mnc subsidiaries are typically large, have higher profitability, employers of qualified accountants, and audited by audit firms with big links. Therefore, in addition to the explanatory power of the above variables, the fact that a company is a multinational subsidiary may not have any additional disclosure; and (ii) there are only 7 MNC subsidiaries in our sample and the number may not be enough to warrant using as an additional explanatory variable; (iii) possibility of data entry error(s). The fact that financial services sector companies also demonstrated negative association with disclosure levels might have been caused by the poorer levels of disclosure by the insurance companies and some banks in the said sector.

References:

Abayo, A. G. and C. B. Roberts (1993) "Does Training More Accountants Raise the Standard of Accounting?", In Wallace R. S. O., John M. samuels and Richard J. Briston (eds.), *Research in Third World Accounting"*, **2**, pp. 259-280. London: JAI Press.

Archambault, J. J. and M. E. Archambault (2003) "A multinational test of determinants of corporate disclosure", *The International Journal of Accounting*, 38, pp. 173-194.

Adelberg, A. H. (1979) "Narrative Disclosures Contained in Financial Reports: Means of Communication or Manipulation?", *Accounting and Business Research*, Summer, pp. 179-190.

Ahmed, K. (1996) "Disclosure policy choice and corporate characteristics: a study of Bangladesh", *Asia Pacific Journal of Accounting*, pp. 184-203.

Ahmed, K. and Des Nicholls (1994) "The Impact of Non-financial Company Characteristics on Mandatory Disclosure Compliance in Developing Countries: The Case of Bangladesh", *The International Journal of Accounting Education and Research*, **29**, pp. 62-77.

Alam, A. K. M. S. (1989) "Corporate Financial Reporting in SAFA Countries: Bangladesh Context", *The Bangladesh Accountant*, April-June, pp. 14-22.

Alam, A. K. M. S. (1990) "An Overview of Corporate Financial Reports in Bangladesh", *The Cost and Management*, March-April, pp. 21-28.

Anderson, T. and Daniel Zeghal (1994) "The Pricing of Audit Services: Further Evidence from the Canadian Market", *Accounting and Business Research*, **24** (95), pp. 195-207.

Ashton, R. H, Paul R. Graul and James D. Newton (1989) "Audit Delay and the Timeliness of Corporate Reporting", *Contemporary Accounting Research*, Spring, pp. 657-673.

Barrett, M. E. (1977) "The Extent of Disclosure in Annual Reports of Large Companies in Seven Countries", *The International Journal of Accounting Education and Research*, **13** (2), pp. 1-25.

Belkaoui, A. and A. Kahl (1978) *Corporate Financial Disclosure in Canada*, Research Monograph No. 1 of Canadian Certified General Accountants Association, Vancouver.

Belsey, D. A., E. Kuh and R. E. Welsch (1980) *Regression Diagnostics* (New York: John Wiley and Sons).

Benjamin, Y. K. Tai, Pak-Kuen Au-Yeung, Maurice C. M. Kwok, and Lawrence W. C. Lau (1990) "Non-Compliance with Disclosure Requirements in Financial Statements: The Case of Hong Kong Companies", *The International Journal of Accounting Education and Research,* **25,** pp. 99-112.

Buzby, S. L. (1975) "Company Size, Listed versus Unlisted Stocks, and the Extent of Financial Disclosure", *Journal of Accounting Research*, Spring, pp. 16-37.

Cerf, A. R. (1961) *Corporate Reporting and Investment Decisions*, Berkeley, University of California Press.

Choi, F. D. S. (1973) "Financial Disclosure and Entry to the European Capital Market" *Journal of Accounting Research*, Autumn, pp. 159-175.

Chow, G. C. (1960) "Tests of Quality Between Two Sets of Co-efficients in Two Linear Regressions", *Econometrica*, **28**, pp. 591-605.

Chow, C.W. and A. Wong-Boren (1987) "Voluntary Financial Disclosure by Mexican Corporations" *The Accounting Review,* **62** (3), pp. 533-541.

Cooke, T. E. (1989) "Disclosure in the Corporate Annual Reports of Swedish Companies", *Accounting and Business Research*, **19** (74), pp. 113-124.

Cooke, T. E. (1991) "An Assessment of Voluntary Disclosure in the Annual Reports of Japanese Corporations", *The International Jpurnal of Accounting Education and Research*, **26**, pp. 174-189.

Cooke, T. E. (1992) "The Impact of Size, Stock Market Listing and Industry Type on Disclosure in the Annual Reports of Japannese Listed Corporations", *Accounting and Business Research*, **22** (87), pp. 229-237.

Charles, A., P. N. Carslaw, Stephen E. Kaplan (1991) "An Examination of Audit Delay: Further Evidence from New Zealand", *Accounting and BusinessResearch*, **22** (85), pp. 21-32.

DeAngelo, L. E. (1981) "Auditor Size and Audit Quality", *Journal of Accounting and Economics*, **3**, pp. 183-199.

Firth, M. (1979) "The Impact of Size, Stock Market Listing, and Auditors on Voluntary Disclosure in Corporate Annual Reports", *Accounting and Business Research*, Autumn, pp. 273-280.

Firth, M. (1979) "The Impact of Size, Stock Market Listing, and Auditors on Voluntary Disclosure in Corporate Annual Reports", *Accounting and Business Research*, Autumn, pp. 273-280.

Firth, M. (1980) "Raising Finance and Firms' Corporate Reporting Policies", *Abacus*, June, pp. 100-115.

Haitovsky, Y (1969) "Multicollinearity in Regression Analysis: Comment", Review of Economics and Statistics, November.

Inchausti, B. G. (1997) "The influence of Company Characteristics and Accounting Regulation on Information Disclosed by Spanish Firms", *The European Accounting Review*, **6**, pp. 45-68.

Haque, S. (1984) "The Impact of Social, Cultural and Economic Environment on Accounting and Auditing in Bangladesh", *Journal of Management, Business and Economics*, University of Dhaka, April, p.156.

Hossain, M., L. M. Tan, & M. Adams (1994) "Voluntary Disclosure in an Emerging Capital Market: Some Empirical Evidence from Companies Listed on the Kuala Lumpur Stock Exchange", *The International Journal of Accounting*, **29**, pp. 334-351.

Kahl, A. and A. Belkaoui (1981) "Bank Annual Report Disclosure Adequacy Internationally" *Accounting and Business Research*, Summer, pp. 189-196.

Karim, A. K. M. W. (1995) *Provision of Corporate Financial Information in Bangladesh*, Unpublished Ph.D. Thesis, The University of Leeds, U.K.

Khandelwal, N. M. and R. S. Agarwal (1991) "Disclosure Practices of Public Enterprises in India", *Indian Journal of Accounting*, **22** December, pp. 34-44.

McNally, G. M., L. H. Eng and C. R. Hasseldine (1982) "Corporate Financial Reporting in New Zealand: An Analysis of the Preferences, Corporate Characteristics and Disclosure Practices for Discretionary Information", *Accounting and Business Research*, Winter, pp. 11-20.

Naser, K. and R. Nuseibeh (2003) "Quality of Financial Reporting: Evidence from the Listed Saudi Nonfinancial Companies". *The International Journal of Accounting*, **38**, pp. 41-69.

Owusu-Ansah, S. (1998) "The Impact of Corporate Attributes on the Extent of Mandatory Disclosure and Reporting by Listed Companies in Zimbabwe", *The International Journal of Accounting*, **33**, pp. 605-631.

Owusu-Ansah, S. and J. Yeoh (2005) "The Effect of Legislation on Corporate Disclosure Practices", *ABACUS*, **41** (1), pp. 92-109.

Parry, M. J. (1989) *The Role of Accounting in the Eonomic Development of Bangladesh*, Ph. D. Dissertation, University of Wales.

Parry, M. J. and Roger E. Groves (1990) "Does Training More Accountants Raise the Standards of Accounting in Third World Countries? A Study of Bangladesh", In Wallace R. S. O., John M. Samuels and Richard J. Briston (eds.), *Research in Third World Accounting"*, **1**, pp. . London: JAI Press.

Patton, J., and I. Zelenka (1997) "An Empirical Analysis of the Determinants of the Extent of Disclosure in Annual Reports of Joint Stock Companies in the Czech Republic", *The European Accounting Review*, **6**, pp. 605-626.

Pradhan, B. B. (1990) "Corporate Financial Reporting Practices in India - Industrywise Analysis", *Indian Journal of Accounting*, pp. 32-43.

Raffournier, B. (1995) "The Determinants of Voluntary Financial Disclosure by Swiss Listed Companies", *The European Accounting Review*, **4,** pp. 261-280.

Robbins, W. A. and K. R. Austin (1986) "Disclosure Quality in Government Financial Reports: An Assessment of the Appropriateness of a Compound Measure", *Journal of Accounting Research*, Autumn, **24** (2), pp. 412-421.

Singh, D. R. (1983) "Public Interest Reporting - A Study of Disclosure in Annual Reports of Indian Companies", *Indian Journal of Accounting*", **13** (1), pp. 18-35.

Singhvi, S. S. (1967) *Corporate Disclosure Through Annual Reports in the USA and India*, Unpublished Doctoral Dissertation, Graduate School of Business, Columbia University.

Singhvi, S.S. and Harsha B. Desai (1971) "An Empirical Analysis of the Quality of Corporate Financial Disclosure", *The Accounting Review*, January, pp. 129-138.

Spero, L. L. (1979) *The Extent and Causes of Voluntary Disclosure of Financial Information in Three European Capital Markets: An Exploratory Study*, Doctoral Dissertation, Harvard University Graduate School of Business.

Stanga, K. G. (1976) "Disclosure in Published Annual Reports", *Financial Management*, Winter, pp. 42-52.

Wallace, R. S. O. (1987) *Disclosure of Accounting Information in Developing Countries: A Case Study of Nigeria*, Doctoral Dissertation, University of Exeter, Devon.

Wallace, R. S. O. (1988) "Corporate Financial Reporting in Nigeria", *Accounting and Business Research*, **18** (72) Autumn, pp. 352-362.

Wallace, R. S. O. and K. Naser (1995) "Firm-Specific Determinants of the Comprehensiveness of Mandatory Disclosure in the Annual Corporate Reports of Firms Listed on the Stock Exchange of Hong Kong", *Journal of Accounting and Public Policy*, **14**, pp. 311-368.

Wallace, R. S. O., K. Naser and A. Mora (1994) "The Relationship Between the Comprehensiveness of Corporate Annual Reports and Firm Characteristics in Spain", *Accounting and Business Research*, **25**, pp. 41-53.

Xiao, Z. (1999) "Corporate Disclosures Made by Chinese Listed Companies"' *The International Journal of Accounting*, **34** (3), pp. 349-373.