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Corporate Attributes Influencing the Compliance of Islamic Finance: Evidence from Listed Companies under Shariah Index in India

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Abstract

The aim of this paper is to provide empirical evidence relating to the factors influencing the compliance of Islamic finance by Indian corporate sector. The sample comprised of the whole population of Shariah companies numbered as 190 consisted in the 500 Shariah and Nifty Shariah indices during the period of 2009 till 2014. However, after making the necessary filtration due to unavailability of data, the actual size of the sample came out to be 136 companies. The relationship between factors and the extent of compliance were analysed using Panel data regression model. The results evident that companies of larger size and higher growth rate have significant mandatory compliance. Whereas, firm size examined with net sales and board independence has withstood with compliance of voluntary and overall measures. The significant implication of our results is that it provided information on firm specific characteristics for the investors who are looking for investment in Shariah compliant companies. In this way investor would be able to keep an eye on their investment. These results may also be advantageous to the regulators in making decisions. Distinct from previous empirical research concerning to Islamic social reporting in Muslim and non-Muslim countries, this study examines the factors affecting the extent of Shariah compliance by the companies listed under Shariah Index in Indian stock exchange.

Keywords

Shariah, Random Effect, Compliance, Panel Data Analysis

1. Introduction

Shariah screening process is comparatively a new entrant in the Islamic finance domain [1] [2]. Muslim community was usually disinclined to participate in stock market just before 1970s owing to the fact of instant Shariah forbiddance enforced on capital market [3]. However, religious rein took a quantum leap during 1990s relating to investment in equity and permitted Muslim to be involved in stock market enforcing certain stipulation [4]. To be mindful of the present market scenario and the contribution of the listed companies in an economic system, a group of dominant Shariah scholars had come about and accorded certain criteria in the course of time 1987 to make Muslim investors able to possess, hold up and transact the shares of the listed companies [5]. It is one of the major initiatives towards encouraging the development of Islamic capital market. Since it provides avenue to Muslim investors and enables them to partake in financial market [6] [7]. Islamic capital market also serve the purpose of Shariah compliant investment for Islamic banking and insurance industry, hence, reckoned as a backbone of whole Islamic financial system [8] [9]. A credence over this market has been shown by investors considering the prominent feature of financial investment which should be in harmony with the Islamic principles [10]. Shariah screening of the portfolio is being performed to ascertain whether these are in conformation with the preconditions laid down by the Shariah board [11] [12]. It is incumbent on screening authority to filter out the business transactions in accordance to Islamic stock screening methodology [13] [14]. In view of the fact that experienced Muslim investors are increasing in the global financial market and they anticipate their funds to be well managed which is aligned according to Islamic values and principles [15]. Shariah screening standards forbids companies from not to indulge much in lending and highly levered activities that in consequence improves the performance of Shariah compliant companies [16]. Given that, Shariah compliant companies provides higher return as compared to non-Shariah and showcased better performance during the period of turmoil [17]. Owing to this reason, this study will concentrate on the relationship between the factors selected on the basis of prior literature and Shariah compliance of the companies. The present study aims to examine the factors influencing the compliance (*i.e.* mandatory, voluntary and overall compliance of the parameters) of Islamic finance by Indian corporate sector. The extent of compliance of Shariah principles vary from one company to another company however, the firm-specific attributes tend to influence Shariah compliance by the companies. This study analysed the relationship between the extents of compliance and corporate attributes of Shariah compliant companies. Although there are several studies that have investigated the factors that may influence a company to provide corporate social reporting and negligible number of studies on Islamic social reporting but none of the studies to the best of my knowledge have analysed Shariah compliance by the companies in India. The firm-specific characteristics whose impact on extent of Shariah com-

pliance are inquired in this study such as Net sales, Total assets, Market capitalisation, return on Assets, return on capital employed, return on net worth, Growth, Leverage, Age of incorporation, Board size, Board independence and Nature of industry. The significance of hypothesising and testing empirically for the impact of these firm-specific characteristics on Shariah compliance practices of the listed companies under Shariah Index is to recommend areas where efforts to improve the Shariah compliance regulating authorities in the country should be focussed. The study of the firm specific characteristic was pioneered by [18], which ascertained the extent of disclosure. It is considered to be important or desirable to measure disclosure by an index of 31 information items by financial analysts in their investment decision making and also reasoned to improve the financial reporting practices of many US companies. The corporate-specific attributes comprises of number of shareholders, asset size and profitability had been noticed to cause the differences in disclosure [18]. The several researchers have adopted [18] study and duplicated his methodology with or without some changes (see. [19]-[26]). Therefore, an attempt has been made by extending this area of study to companies comprised under Shariah index listed on the NSE India.

Although there are myriad studies examining the conventional social reporting followed by voluntary disclosures made by the companies available in abundance in the national and international sphere. Succeeded by, very few of the studies with respect to Islamic social reporting and the Shariah compliance of the companies are found in the international arena, however, to the best of my knowledge, the level of compliance of Shariah principles made by the companies under different industries has been overlooked yet in India. One of the important issue that has been often talked about is the determinants influencing the conventional social reporting, voluntary disclosures and Islamic social reporting. The various firm specific characteristics are recognised in the prior studies which effect conventional social reporting, mandatory and voluntary disclosures and Islamic social reporting but could those factors impact the Shariah compliance of the companies have not been discussed. So, the empirical purpose of this paper is to scrutinize if those factors could influence the extent of Shariah compliance or not.

The paper is organised as follows. The second section briefly discusses the theoretical background of various determinants and help to develop the hypothesis. The third section explores the econometric model with special reference to Panel regression to consider both the dimension time and cross-section of the data. The fourth section reports the results of empirical analysis. The fifth section talks about concluding remarks which contains implication and future scope of the study.

2. Theoretical Background and Development of Hypotheses

In this section, researchers explained different independent variables and how these variables are related to dependent variable (Disclosure of Shariah

compliance).

2.1. Dependent Variable

Disclosure of Shariah compliance index is the dependent variable. The study employed content analysis tool to examine the extent of Shariah compliance by the different companies that have been a generally acceptable method of coding used in the prior studies of disclosure [27] [28] [29] [30]. An index was formulated consisting of 47 items and further sub-categorised into 6 themes. A number of items related to Shariah compliance are there in each theme. This method was adopted in various studies, however, concerning to Islamic social reporting put forward by [27] [31] and CSR information disclosure for Islamic financial institutions [27] [31] [32] but no study to the best of knowledge in India measured the financial aspect of Shariah compliant companies as recommended by Shariah advisory. Owing to this reason, the study has been extended by developing Shariah compliance index and taking into account the financial parameters along with rest of the five parameters to determine the Shariah compliance of the companies.

2.2. Independent Variable

This study considered several factors that could contribute to the extent of Shariah compliance by the different companies based on prior studies have been discussed below. Results of the previous studies revealed that firm size, profitability, board composition, leverage, nature of the industry, age along with increase in independent directors influenced the extent of Islamic social reporting and voluntary disclosure [33]-[43].

2.2.1. Size

Company size would influence the decision-making of the company while disclosing the information in the annual report [44]. It is used to assess the political cost which increases as per the size of company and the level of risk [45]. It is concerned with agency theory in which larger firm bearing high agency cost would dig into for more information in order to cut down the agency costs [41] [43] [46]. The various aspects of the company are generally explained by company size which is considered as an estimator variable. Company size can be ascertained on the basis of the total assets, size of equity together with company value [47]. Size constitutes as one of the most important variables in ascertaining the extent of disclosure. The relationship between size and voluntary disclosure in general had been examined in a lot of studies [36] [48]-[53]. The impact of size on disclosure has been examined all around the different countries such as the Austria [54], US [25] [26] [55], Canada [56], the UK [24], Mexico [57], Nigeria [23], Spain [20] [58] and Sweden [22]. On the basis of above discussion the following hypothesis is evaluated:

H1: There is a significant relationship between size of the company and extent of Shariah compliance.

2.2.2. Leverage

The previous studies ascertained relationship between financial leverage and the extent of disclosure [59]. It is indicated by [60] that decrease in debt holder's inclinations to price-protect in contrast to transfers from themselves to shareholder has been observed with the increase in disclosure on the basis of agency theory. In various studies, a positive relationship between leverage and corporate disclosure has been determined [61]. According to [62], more highly leveraged firms attempt to disclose more information in annual reports in order to cut down monitoring costs incurred by the companies. On the other hand, [63] established a negative and significant relationship between leverage and the corporate social responsibility. It is indicated that the firm with high leverage in order to fend off creditor scrutiny will bring down its CSR communication. The high leverage company seeks not to get much attention from the debt holders by reducing the corporate governance disclosure. [42] found a significantly negative effect of leverage on corporate social responsibility disclosure while examining the factors influencing disclosure of CSR in Indonesia. The prior study demonstrated that size control variable and leverage leads to good corporate governance which results in a good impact on the value of company [64]. In view of above discussion, the following hypothesis is assessed:

H2: There is a significant relationship between leverage of the company and extent of Shariah compliance.

2.2.3. Growth

It is anticipated that companies with the higher growth opportunities incline to make effort on improving the disclosure level [65]. The prior studies used growth as a predictor variable to test the difference in disclosures of companies. However, the compliance of Shariah principles could get influenced by the growth of the company should also be examined. In the view of above discussion, the following hypothesis is examined:

H3: There is a significant relationship between growth of the company and extent of Shariah compliance.

2.2.4. Profitability

The prior studies make it evident that profitability has the capability of affecting the extent to which companies reveal mandatory information in the annual reports [18] [26] [34] [66] [67]. To support this assumption, various reasons have been put forward. Profitability is considered as a standard of management performance and so the profitable organisation is expected more to reveal to help the users in making financial decisions and explaining their compensation package and position [26] [68]. Otherwise, organisation with a poor performance may reveal less information to hide the unsatisfactory position. In some studies [69], the direction of relationship between profitability and disclosure is not clear however, [20] established no association between profitability and disclosure. Nevertheless, profitable company is more possibly to divulge information required by the users. In view of

above discussion, the following hypothesis is studied:

H4: There is a significant relationship between profitability of the company and extent of Shariah compliance.

2.2.5. Age

Empirical evidence with regard to company age and voluntary disclosure found an association between them [36] [37]. Moreover, long established firm are more inclined towards communicating voluntary social disclosure reported by prior research that debated the age of the company and its influence on CSR (corporate social responsibility) participation. [70] indicated positive association between CSR and age of firms. The reason behind this association is that deep-rooted firms have acquired more assistance from the society as compared to young companies and over the period of time as the relationship grows older company attempts to take a greater leadership role and develop the sense of social responsibility. [71] observed that deep-rooted firms dispose to communicate more information than budding companies. On the basis of above discussion, the following hypothesis is investigated:

H5: There is a significant relationship between age of the company and extent of Shariah compliance.

2.2.6. Board Size

Board size can influence the extent of disclosure, controlling and monitoring process indicated by various empirical studies in corporate governance [40] [72]. Large board size makes the task of controlling CEO and monitoring process uncomplicated and effective [73]. On the other hand, communication and coordination amongst board members could be restrained due to very large board size and therefore will prevent process of monitoring. It is necessary to maintain an appropriate size of board as very large or small board will not be efficacious and suggests non-linear relationship between size of board and corporate social responsibility, where evidence of positive effect on CSR with larger board size and negative influence with a very large board size is found. In the opinion of [74], a large board size may wane the possibleness of information asymmetry. In addition to that, it may also bring down the precariousness and the dearth of information [75]. Given the more members on the board, the capability of members of the SSB to oversee the functions of bank that influence the welfare of the society becomes much higher. Since, collaborative knowledge and acquaintance of the SSB members will develop with the more members that contribute towards higher communication of CSR information. The following hypothesis is tested, on the basis of above discussion.

H6: There is a significant relationship between board size of the company and extent of Shariah compliance.

2.2.7. Board Independence

It is considered that many of the corporate governance problems can be solved with the presence of Independent directors on the board of the company. Inde-

pendent directors on the board performed an oversight role on management on shareholder's part and also believed to be as a potential solution to the problems. They can supervise management efficaciously as per the assumed facts because they do not require a disposition to good graces of management, and can express their opinion openly and without any hesitation or fear in front of management misdeeds, outside and inside the boardroom, with the objective of shielding the interests of shareholders [38]. It is examined that the composition of independent commission board and corporate social responsibility disclosure of the company are positively and significantly correlated with each other [76]. An empiric manifestation with respect to independent director's role towards corporate transparency is found to be mixed regardless of witnessing its so many utility. [39] evidenced the role of independent directors in holding back the earnings management efficaciously between the Standard and Poor's 100 firms in the United States. [77] demonstrated that the independent directors encourage voluntary disclosure amongst Italian companies accompanying prevalent shareholders. [78] indicated higher extent of voluntary disclosure in Singapore if the firm having majority of independent directors or a higher proportion of independent directors on the board. But then, [36] [79] observed no significant relationship between independent directors and the level of voluntary disclosure in Hong Kong and Malaysia, respectively. Given the foregoing discussion, following hypothesis is submitted:

H7: There is a significant relationship between board independence of the company and extent of Shariah compliance.

2.2.8. Nature of Industry

The study included industry type as a predictor variable. It is argued that the disclosure practices of the firm are not expected to be same across varied industry due to the variations may occur in accounting policies and practices of the companies [35] [80]. The reason behind differences could be a particular situation in which specific industry might come across and affect their disclosure practice [20]. The overall contributions of certain industries towards export earnings or national income of the country become the reason for its rigorous control and high regulation. This may also influence the disclosure and reporting practices of the firm in that specific industry [35]. The other studies [81] suggested, for instance, companies under media industry are less expected to disclose certain accounting ratios as compared to companies in the other industries. Because the feeling of making less additional disclosures comes among the companies under the regulated industries in order to make their activities legal. [82] suggested that import of intermediate materials and foreign partnership influence the performance of the firms. [52] indicated the bandwagon effect according to that if one company prevalent in the industry disclose more, this would prompt other companies to disclose more belong to the same industry. The findings of prior studies showed mixed results. [83] suggested a positive relationship between types of industry and the level of corporate disclosure

whereas, [20] [35] suggested no significant relationship between industry type and level of corporate disclosure. Therefore, foregoing discussion contributed to the development of the following hypothesis:

H8: There is a significant relationship between nature of industry of the company and extent of Shariah compliance.

3. Econometric Model

A panel data regression model has been employed to study the factors that could influence the Shariah compliance of the companies. This model has been preferred over the multiple regressions because it can handle the datasets containing both cross-sections and time period observations. A panel data regression can be measured with the help of Fixed Effect Model (FEM) or Random effect model (REM). But this study rests on REM model due to the inclusion of some sector specific dummy variables and precluded the application of FEM model. Here is the glimpse of a panel data regression model below:

3.1. Panel Data

Panel data analysis examines the particular subject within multiple sites over a specified time form which has been observed periodically. However, combining the cross-sections with time series can make the quantity and quality of data better in the way that it would be inconceivable to employ only one of these attributes [84]. It is considered to be a powerful and rich tool for the one who takes into account both the dimensions time and cross-section of the data. Panel data analysis by considering both a temporal and spatial aspects empowers the regression analysis. A set of cross-sectional units of observations are known as the spatial dimensions which could be firms, states, commodities, countries, group of people, or even individuals. Whereas, periodic observations of a group of variables are regarded as a temporal dimension. There are various kinds of analytical models to study the panel data such as Pooled regression model (the constant Coefficients Model), Fixed effects model (Least Square Dummy Variable Model), Random effects model, Dynamic panel, Robust models and covariance structure models.

There are three competing formulations according to Table 1. The first is to ignore the panel nature of the data and treat the disturbance term as identically and independently distributed. The disturbance is uncorrelated with the explanatory variables. In this case data can be pooled and ordinary least squares (OLS) can be used to estimate the model, as the selection of any technique depends on the underlying objectives and the meeting of the assumption of that technique. In the current case there is no theoretical foundation supporting the application of GMM or FMOLS. Also, the dataset being investigated does not fulfill all the assumptions of these techniques. Hence, OLS regression technique has been deployed. We call this the pooled model. Pooled regression model is also recognised as the constant coefficients model. This model has

Table 1. Panel data models.

MODEL $y_{it} = \alpha_{it} + X'_{it}\beta + u_{it}$	INTERCEPT TERM	DISTURBANCE TERM
Pooled Model	$\alpha_{it} = \alpha$	*Uit*
One-Way Fixed Effects	$\alpha_{it} = \alpha + \mu_i$	*Uit*
Two-Way Fixed Effects	$\alpha_{it} = \alpha + \mu_i + \lambda_t$	*Uit*
One-Way Random Effects	randomly changing over *i*	$u_{it} = \mu_i + v_{it}$
Two-Way Random Effects	randomly changing over *i*	$u_{it} = \mu_i + \lambda_t + v_{it}$

constant coefficients and implies to both slopes and intercepts that are neither significant to cross-section nor significant temporal effects rather pool all the data and run an ordinary least squares regression model. The pooled model essentially postulates that both the intercept and the slope coefficients are the same across individual units and time.

3.2. Generalized Least Squares (GLS)

In order to apply GLS, we need to calculate θ by utilizing the Ω matrix:

$$\theta = 1 - \sqrt{\frac{\sigma_v^2}{T\sigma_u^2 + \sigma_v^2}}$$

*If $\theta = 0$, run pooled OLS regression. If $\theta = 1$ and $\sigma_v^2 = 0$, then run the within effect model.

In order to run an OLS, we first need to transform the variables as below:

$$\alpha^* = 1 - \theta$$

$$x_{it}^* = x_{it} - \theta \overline{x}_i \quad \text{for all} \quad X_k$$

$$y_{it}^* = y_{it} - \theta \overline{y}_i$$

Now, on the transformed variables we can run an OLS.

$$y_{it}^* = \alpha^* + x_{it}^{*\prime}\beta^* + \varepsilon_{it}^*$$

3.3. Feasible Generalized Least Squares (FGLS)

In order to apply FGLS, the first thing is to estimate θ with the help of $\hat{\sigma}_v^2$ and $\hat{\sigma}_u^2$.

$$\hat{\theta} = 1 - \sqrt{\frac{\hat{\sigma}_v^2}{T\hat{\sigma}_u^2 + \hat{\sigma}_v^2}} = 1 - \sqrt{\frac{\hat{\sigma}_v^2}{T\hat{\sigma}_{\text{between}}^2}}$$

The $\hat{\sigma}_v^2$ comes from sum of squared errors (*SSE*) of the "within effect estimation" or the deviations of residual from group means of the residuals:

$$\hat{\sigma}_v^2 = \frac{SSE_{\text{within}}}{nT - n - k} = \frac{e'e_{\text{within}}}{nT - n - k} = \frac{\sum_{i=1}^{n}\sum_{t=1}^{T}(v_{it} - \overline{v}_i)^2}{nT - n - k}$$

where v_{it} represents the residuals of LSDV.

The $\hat{\sigma}_u^2$ is derived from group mean regression (between effect estimation):

$$\hat{\sigma}_u^2 = \hat{\sigma}_{\text{between}}^2 - \frac{\hat{\sigma}_v^2}{T}, \quad \text{where } \hat{\sigma}_{\text{between}}^2 = \frac{SSE_{\text{between}}}{n-K}$$

Now, transform the variables by utilizing $\hat{\theta}$ and then we can perform an OLS:

$$y_{it}^* = \alpha^* + x_{it}^{*\prime}\beta^* + \varepsilon_{it}^*$$
$$\alpha^* = 1 - \hat{\theta}$$
$$x_{it}^* = x_{it} - \hat{\theta}\overline{x}_i \quad \text{for all} \quad X_k$$
$$y_{it}^* = y_{it} - \hat{\theta}\overline{y}_i$$

A two-way random effect model is when there is within effect error component in both the time series and cross-section in a random effect model. In this situation, the error term should be uncorrelated with both group (cross-sectional) error and time series component. The orthogonality of both the component permits the general error to be decomposed within the cross-sectional temporal, specific and individual error components.

$$e_{it} = v_i + e_t + \eta_{it}$$

Here, e_t represents the time specific component. This e_t is peculiar to all observations for that time period, t. v_i represent the cross-section specific error. This component affects only those observations which are in that panel. Whereas, particular observation in the panel is affected by η_{it}. These kind of models are referred to as two-way random effects model (SAS, 1999).

3.4. LM Tests for Random Effects

Testing for the existence of cross-section (individual) and time effects is important in panel and pool regression settings since accounting for the presence of these effects is necessary for correct specification of the regression and proper inference. Eviews offers testing for individual and time effects using both F-statistic (likelihood ratio) and Lagrange multiplier (LM) tests. The F-statistic test is used in case of fixed effects model whereas, Lagrange multiplier (LM) test is used in case of a random-effects model.

The most popular random effects test is the [85] LM test. [86] derives component LM tests with one-sided alternatives, obtaining a uniformly most powerful (UMP) test statistic. [87] propose a standardized version of the Honda test that has improved asymptotic size. King and Wu (1997) introduce a locally mean most powerful (LMMP) one-sided LM test. In addition, [88] [89] extend the Breusch-Pagan, Honda, and King and Wu approaches to unbalanced designs.

[85] developed LM (Lagrange Multiplier) test in order to test the presence of individual and time effects in the model [90]. The null hypothesis for LM test states that $\sigma_u^2 = 0$, that is, the variance components of the cross-section are zero. That is, the null hypothesis of the LM test support for pooled model. Whereas an alternative hypothesis renders that the variance of the individual

specific term is not equal to zero, that is it holds the random-effects model. The Lagrange Multiplier Test complies chi-square (x^2) distribution with degree of freedom equal to one. If the tabulated value of chi-square is less than that of calculated value, in that case null hypothesis is rejected and we accept alternative hypothesis. Therefore, we can propose that random effects model is more suitable than pooled model (OLS) for that particular data set.

$$LM_u = \frac{nT}{2(T-1)}\left[\frac{e'DDe}{e'e}-1\right]^2 = \frac{nT}{2(T-1)}\left[\frac{T^2\overline{e}'e'}{e'e}-1\right]^2 \sim x^2(1)$$

where, $e'e$ represents the Sum of Squares due to Error (SSE) of the pooled model (OLS regression model), and $\overline{e}$ represents the $n \times 1$ vector of the group means of pooled regression residuals.

[91] introduced the same Lagrange Multiplier Test, but in a different form.

$$LM_u = \frac{nT}{2(T-1)}\left[\frac{\sum\left(\sum e_{it}\right)^2}{\sum\sum e_{it}^2}-1\right]^2 = \frac{nT}{2(T-1)}\left[\frac{\sum\left(T\overline{e}_i\right)^2}{\sum\sum e_{it}^2}-1\right]^2 \sim x^2(1)$$

If we accept the alternative hypothesis then it means that a random effects model is more relevant and efficient in handing the heterogeneity in the model better than a pooled OLS model. In a two-way random effects model, the null hypothesis is $H_0 : \hat{\sigma}_u^2 = 0$ and $\hat{\sigma}_v^2 = 0$. In another words, a Lagrange Multiplier (LM) test combines two one-way random effects model for time and group, that is,

$$LM_{u12} = LM_{u1} + LM_{u2} \sim x^2(2).$$

4. Results

4.1. Multicollinearity Tests

When the study includes a number of predictor variables the problem of multicollinearity arises. Consequently, it becomes hard to ascertain the impact of each of the predictor variables on the response variable [92] [93]. When the correlation is found to be greater than 0.80 (Gujarati, 1995), or the variance inflation factor (VIF) transcends ten, then multicollinearity is considered to be a grave problem [94] [95]. Because higher level of VIF could affect the results of regression analysis so researchers want it to be lower. A variance inflation factor suggests the magnitude of the inflation related to a beta weight in the standard errors on account of multicollinearity. In other words, VIF evaluates the increase in variation of a calculated regression coefficient with the correlated predictors. For instance, a factor with a VIF of 7 increases the standard errors than would be the case otherwise, if there were no inter-correlations among the independent variable of interest and rest of the independent variable consists in the regression analysis. The variance inflation factor (VIF) is used as a signal of multicollinearity in multiple regressions. It is determined as the reciprocal of tolerance:

$$VIF = \frac{1}{1-R^2}$$

Several authors have been given recommendations for the acceptable extent of VIF. A value of utmost 10 level of VIF has been most commonly recommended [96] [97] [98] [99]. The recommended VIF value of 10 represents as the tolerance recommendation of 0.10 (in other words, 1/0.10 = 10). Nevertheless, a value of maximum 5 VIF [100] and still 4 VIF [101] are supported by previous studies. Therefore, researchers can opt any of the measures which would serve their purpose. The VIF is estimated to examine the multicollinearity problem.

The presence of multicollinearity in the data has been determined by using Variance Inflation Factor (VIF). Table 2 showed the VIF values for all variables. It is observed from the results that there is no problem of multicollinearity between Age of the company, Director, Market capitalisation, Net sales, Leverage, Board Independence, Growth, Return on capital employed, Return on Assets and Total assets. However, there is a multicollinearity problem found in Net Worth. Therefore, Net worth variable was excluded from the regression model. The value of Durbin Watson is between the value of du and 4-dl (du < DW).

Table 3 provides the descriptive statistics of all the variables considered for this study. It is observed from Table 3 that means of test variables such as, mandatory, voluntary and overall compliance exhibited about 92.1 percent, 69.8 percent and 71.7 percent for all the companies, respectively. On the other hand, the mean values of predictor variables namely Net sales (9.99), Total Assets (10.26), Market capitalisation (10.88), Return on Assets (0.17), Return on capital employed (19.51), Growth (14.45), Leverage (0.20), Age (3.49), Board Size (2.33) and Board Independence (0.43). For measuring the normality of the data, skewness and kurtosis have been used. In the current study, the skewness values range

Table 2. Multicollinearity test.

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	16.68750	135.2439	NA
Board Independence	8.102560	13.40537	1.033642
Growth	0.000647	2.231818	1.136202
Leverage	1.699194	1.875145	1.269834
Age	0.366728	37.38866	1.096212
Director	2.294798	102.5220	1.409567
Market Capitalisation	0.297428	291.9034	6.401163
Net Sales	0.213391	177.0659	4.241955
Total Assets	0.530402	462.3138	9.535807
Return on Capital Employed	0.002373	11.45850	4.132267
Return on Assets	51.42381	16.64003	3.908662

Source: Compiled by Author.

Table 3. Descriptive statistics.

Variables	Mean	Median	Max	Min	S.D	Skewness	Kurtosis
Mandatory Compliance	92.15	100.00	100.00	50.00	12.92	−1.35	3.83
Voluntary Compliance	69.77	70.00	84.00	49.00	5.63	−0.25	2.88
Overall Compliance	71.71	72.00	85.00	51.00	5.30	−0.17	2.92
Net sales	9.99	9.91	15.20	2.82	1.56	−0.02	4.44
Total Assets	10.26	10.02	15.11	7.04	1.49	0.67	3.23
Market Capitalisation	10.88	10.65	15.24	6.86	1.63	0.29	2.65
Return on Assets	0.17	0.16	0.62	−0.28	0.09	0.68	5.42
Return on Capital Employed	19.51	17.2	93.68	−66.79	14.66	1.20	7.83
Growth	14.45	13.3	93.36	−55.12	14.73	0.44	6.71
Leverage	0.20	0.06	2.07	0.00	0.30	2.18	8.96
Age	3.49	3.49	4.56	0.69	0.60	−0.58	3.62
Board Size	2.33	2.30	3.25	1.09	0.27	−0.01	3.18
Board Independence	0.43	0.44	0.83	0.00	0.12	−0.26	3.68

Source: Compiled by Author.

from −1.35 (mandatory compliance) to 2.18 (leverage) which is falling under the accepted critical values of ±3 for skewness and the kurtosis values ranges from 2.65 (market capitalisation) to 1.83 (return on capital employed) which again falls under the accepted critical values ±8 [102] however, the kurtosis value of leverage is found to be 8.96, which is quite closer to the prescribed cut off value by [102]. Therefore, data can be concluded to be quite normal in nature.

4.2. Model Development

On the basis of foregoing discussion, the following model has been presented to assess the factors that could influence the Shariah compliance of the companies. The following models are employed to test H1 - H8:

$$
\begin{aligned}
\textit{Extent of Compliance} \left(\text{Model I}\right)_{i,t} \\
= \alpha + \beta_1 LnSales_{i,t} + \beta_2 LnTA_{i,t} + \beta_3 LnMarket\,cap_{i,t} + \beta_4 ROA_{i,t} \\
+ \beta_5 ROCE_{i,t} + \beta_6 Growth_{i,t} + \beta_7 Leverage_{i,t} + \beta_8 LnAge_{i,t} \\
+ \beta_9 LnBoard\,size_{i,t} + \beta_{10} Board\,independence_{i,t} \\
+ \beta_{11} Nature\,of\,industry_{i,t} + \varepsilon_{i,t}
\end{aligned}
\tag{4.1}
$$

$$
\begin{aligned}
\textit{Extent of Compliance} \left(\text{Model II}\right)_{i,t} \\
= \alpha + \beta_1 LnSales_{i,t} + \beta_2 LnTA_{i,t} + \beta_3 LnMarket\,cap_{i,t} + \beta_4 ROA_{i,t} \\
+ \beta_5 ROCE_{i,t} + \beta_6 Growth_{i,t} + \beta_7 Leverage_{i,t} + \beta_8 LnAge_{i,t} \\
+ \beta_9 LnBoard\,size_{i,t} + \beta_{10} Board\,independence_{i,t} \\
+ \beta_{11} Nature\,of\,industry_{i,t} + \varepsilon_{i,t}
\end{aligned}
\tag{4.2}
$$

$$\begin{aligned}
&\textit{Extent of Compliance}\left(\text{Model III}\right)_{i,t} \\
&= \alpha + \beta_1 LnSales_{i,t} + \beta_2 LnTA_{i,t} + \beta_3 LnMarket\,cap_{i,t} + \beta_4 ROA_{i,t} \\
&\quad + \beta_5 ROCE_{i,t} + \beta_6 Growth_{i,t} + \beta_7 Leverage_{i,t} + \beta_8 LnAge_{i,t} \qquad (4.3)\\
&\quad + \beta_9 LnBoard\,size_{i,t} + \beta_{10} Board\,independence_{i,t} \\
&\quad + \beta_{11} Nature\,of\,industry_{i,t} + \varepsilon_{i,t}
\end{aligned}$$

where,

α = constant term, β = slope of the explanatory variables, *LnSales* = Net sales, *LnTA* = Total assets, *LnMarket cap* = Market capitalisation, *ROA* = Return on assets, *ROCE* = Return on capital employed and ε = error term.

The aforementioned regression equation is calculated for their parameters α and β by employing panel regression. The unit root test (ADF) applied for all the variables evident stationarity of the panelled data. Then proceed further for estimating Breusch-Pagan Lagrange Multiplier test in order to check the pertinence of the panel data analysis over pooled data analysis.

Table 4 exhibited the results of pooled regression with respect to compliance of mandatory, voluntary and overall parameters according to Shariah principles. It is found that Net sales, Total assets, Return on assets, Growth, Leverage, Board of Independence and Construction dummy and Pharma dummy from the Industry type are significant variables which influence the compliance of mandatory parameters. Alternatively, with regard to compliance of voluntary parameters, variables among others Net sales, Market capitalisation, Growth, Director, Board of Independence and Media & Entertainment dummy, Cement dummy, Metal dummy, IT dummy and Pharmaceutical dummy from Industry type are reported to be significant. If we look at the variables namely Market capitalisation, Net Sales, Total assets, Growth, Leverage, Director, Board of Independence and Media & Entertainment dummy, Consumer goods dummy, Cement dummy, IT dummy, Metal dummy, and Pharma dummy from Industry type are observed to be significant subject to compliance of overall parameters. The model fit of mandatory parameters are discovered to be alright with adjusted R square 41.46 percent as compared to overall at 15.86 percent and voluntary parameters count as 13.75 percent, respectively. The f values are also reported to be significant subject to mandatory, voluntary and overall parameters. The coefficient of variables like Capital employed, Age, Industrial undertaking dummy, Financial services dummy, Fertilizer dummy, Automobile dummy, Chemical dummy, Energy dummy, Healthcare dummy and services dummy are revealed to be not significant, neither as regards to mandatory accompanied by voluntary nor overall parameters.

The foregoing results failed to notice the panel effect; therefore, they need to be taken care cautiously. For the matter of examining factors influencing the extent of Shariah compliance, a panel data regression needs to be applied. Hence, the relevance of panel regression analysis over pooled analysis has been ascertained using Breusch-Pagan Lagrange Multiplier test.

Table 4. Pooled regression.

Variable	Statistics	Mandatory	Voluntary	Overall
Constant	Coefficient	111.266***	67.117***	70.779***
	Std. Error	5.642	2.989	2.776
Net sales	Coefficient	6.566***	0.586**	1.080***
	Std. Error	0.532	0.282	0.262
Total Assets	Coefficient	−6.616***	−0.483[n.s]	−0.982**
	Std. Error	0.913	0.484	0.449
Market capitalisation	Coefficient	−0.530[n.s]	0.903***	0.765***
	Std. Error	0.592	0.314	0.291
Return on Assets	Coefficient	−23.599***	1.390[n.s]	−0.585[n.s]
	Std. Error	7.730	4.094	3.803
Return on Capital Employed	Coefficient	0.087**	−0.036[n.s]	−0.026
	Std. Error	0.051	0.027	0.025
Growth	Coefficient	0.054**	−0.044***	−0.036***
	Std. Error	0.025	0.013	0.013
Leverage	Coefficient	−16.245***	−0.040[n.s]	−1.405**
	Std. Error	1.360	0.721	0.669
Age	Coefficient	0.635[n.s]	−0.251[n.s]	−0.154[n.s]
	Std. Error	0.675	0.358	0.332
Board size	Coefficient	−1.930[n.s]	−2.692***	−2.579***
	Std. Error	1.575	0.834	0.775
Board Independence	Coefficient	7.937***	8.995***	9.034***
	Std. Error	3.027	1.604	1.489
Industrial Manufacturing	Coefficient	−6.990[n.s]	−2.905[n.s]	−3.362[n.s]
	Std. Error	4.391	2.326	2.160
Consumer Goods	Coefficient	−7.004[n.s]	−3.874*	−4.186**
	Std. Error	4.314	2.285	2.122
Financial Services	Coefficient	−0.990[n.s]	−2.051[n.s]	−2.013[n.s]
	Std. Error	5.801	3.073	2.854
Fertilisers & Pesticides	Coefficient	−5.354[n.s]	−2.612[n.s]	−2.805[n.s]
	Std. Error	4.740	2.511	2.332
Media & Entertainment	Coefficient	−4.510[n.s]	−10.860***	−10.234***
	Std. Error	4.885	2.588	2.403
automobile	Coefficient	−4.775[n.s]	−3.480[n.s]	−3.600*
	Std. Error	4.407	2.334	2.168
Cement	Coefficient	−4.012[n.s]	−5.470**	−5.359**
	Std. Error	4.765	2.524	2.344
Chemicals	Coefficient	−6.106[n.s]	−0.582[n.s]	−1.095[n.s]
	Std. Error	4.842	2.565	2.382
Construction	Coefficient	−12.495**	−1.959[n.s]	−2.895[n.s]
	Std. Error	4.944	2.619	2.432
Energy	Coefficient	−7.413[n.s]	−1.639[n.s]	−2.098[n.s]
	Std. Error	4.508	2.388	2.218
Healthcare	Coefficient	2.286[n.s]	−4.224[n.s]	−3.856[n.s]
	Std. Error	5.937	3.145	2.921

Continued

IT	Coefficient	−8.352*	−4.551*	−4.888**
	Std. Error	4.428	2.346	2.178
Metal	Coefficient	−8.667*	−5.353**	−5.716**
	Std. Error	4.562	2.416	2.244
Pharmaceutical	Coefficient	−10.699**	−4.731**	−5.311**
	Std. Error	4.360	2.309	2.145
Services	Coefficient	−4.632[n.s]	−2.525[n.s]	−2.764[n.s]
	Std. Error	4.474	2.370	2.201
Adjusted R-Squared		0.414633	0.137583	0.158648
F-statistic		24.09153 (0.000000)	6.200756 (0.000000)	7.147150 (0.000000)

Note: ***$p < 0.01$; **$p < 0.05$; *$p < 0.10$; n.s: $p > 0.05$; Source: Compiled by Author.

Table 5. Breusch-pagan lagrange multiplier test.

	Test Hypothesis		
	Cross-section	**Time**	**Both**
Model I	386.6998 (0.0000)	0.000622 (0.9121)	386.7004 (0.0000)
Model II	86.53852 (0.0000)	4030.081 (0.0000)	4116.619 (0.0000)
Model III	90.67027 (0.0000)	4303.096 (0.0000)	4393.767 (0.0000)

Reject the null hypothesis 5%; Source: Compiled by Author.

Table 5 exhibits the results of Breusch-Pagan Lagrange Multiplier test which has rejected the null hypothesis of no panel effect (no variation across entities) at 5 percent significance level. Therefore, results suggested analysing the data employing panel data regression in this study.

Further, the pre-testing of model ruled out the fixed effect model due to the inclusion of sector specific dummy variable and fixed-effect model itself known as dummy model. Therefore, we proceed with the random effect model. Further, a test of homogeneity is conducted to ascertain either cross-section or time period or both effects exist in the model. The results revealed that only cross-section effect is present in case of model I consisting mandatory parameters. On the contrary, both cross-section and time period effects are existing subject to model II and model III comprising voluntary and overall parameters, respectively. Thus, cross-section (one-way variable intercept model) REM test for mandatory parameters and cross-section and time period (two-way variable intercept model) REM test has been employed to calculate the panel effects. This study consists of short panel and small sample performance might be inconsistent with the large sample estimators that make [103] or [33] variance component estimators desirable [104]. It is evident from the well-known references comprises of [33] [105] [106] [107] [108] [109] indicates that these estimators of variance compo-

nent of random effect model are congruous but not compatible in limited samples. Thus, [103] variance component estimators are used in the study. Table 6 provides the results of panel data regression.

Table 6. Panel regression.

Variable	Statistics	Mandatory	Voluntary	Overall
Constant	Coefficient	105.523***	67.861***	71.444***
	Std. Error	11.930	4.443	4.268
Net sales	Coefficient	4.729***	0.726**	1.159***
	Std. Error	0.887	0.350	0.330
Total Assets	Coefficient	−5.352***	−0.175	−0.696
	Std. Error	1.267	0.533	0.499
Market capitalisation	Coefficient	$0.564^{n.s}$	$-0.286^{n.s}$	$-0.295^{n.s}$
	Std. Error	0.609	0.320	0.294
Return on Assets	Coefficient	$-11.399^{n.s}$	$6.071^{n.s}$	$4.423^{n.s}$
	Std. Error	7.051	3.278	2.992
Return on Capital Employed	Coefficient	$0.034^{n.s}$	$-0.021^{n.s}$	$-0.015^{n.s}$
	Std. Error	0.051	0.023	0.021
Growth	Coefficient	0.044**	$-0.008^{n.s}$	$-0.002^{n.s}$
	Std. Error	0.021	0.010	0.009
Leverage	Coefficient	−17.886***	$0.240^{n.s}$	−1.232*
	Std. Error	1.579	0.696	0.642
Age	Coefficient	$2.273^{n.s}$	$-0.599^{n.s}$	$-0.414^{n.s}$
	Std. Error	1.478	0.526	0.507
Board size	Coefficient	−3.316*	$0.302^{n.s}$	$0.167^{n.s}$
	Std. Error	1.913	0.865	0.800
Board Independence	Coefficient	$0.694^{n.s}$	3.378**	3.322**
	Std. Error	2.983	1.412	1.293
Industrial Manufacturing	Coefficient	$-7.201^{n.s}$	$-0.503^{n.s}$	$-1.038^{n.s}$
	Std. Error	10.199	3.456	3.344
Consumer Goods	Coefficient	$-6.967^{n.s}$	$-1.235^{n.s}$	$-1.634^{n.s}$
	Std. Error	10.127	3.419	3.311
Financial Services	Coefficient	$-3.533^{n.s}$	$-0.252^{n.s}$	$-0.398^{n.s}$
	Std. Error	13.892	4.655	4.512
Fertilisers & Pesticides	Coefficient	$-5.882^{n.s}$	$-0.425^{n.s}$	$-0.697^{n.s}$
	Std. Error	11.136	3.767	3.648
Media & Entertainment	Coefficient	$-2.879^{n.s}$	−9.309**	−8.617**
	Std. Error	11.436	3.856	3.733
automobile	Coefficient	$-4.753^{n.s}$	$-0.906^{n.s}$	$-1.100^{n.s}$
	Std. Error	10.366	3.504	3.394
Cement	Coefficient	$-4.295^{n.s}$	$-2.118^{n.s}$	$-2.095^{n.s}$
	Std. Error	11.169	3.788	3.668
Chemicals	Coefficient	$-6.571^{n.s}$	$0.789^{n.s}$	$0.231^{n.s}$
	Std. Error	11.475	3.865	3.744
Construction	Coefficient	$-15.003^{n.s}$	$0.746^{n.s}$	$-0.348^{n.s}$
	Std. Error	11.543	3.905	3.780

Continued

Energy	Coefficient	$-8.851^{n.s}$	$0.946^{n.s}$	$0.410^{n.s}$
	Std. Error	10.516	3.576	3.461
Healthcare	Coefficient	$3.251^{n.s}$	$-1.562^{n.s}$	$-1.196^{n.s}$
	Std. Error	13.990	4.713	4.565
IT	Coefficient	$-8.876^{n.s}$	$-1.826^{n.s}$	$-2.251^{n.s}$
	Std. Error	10.356	3.504	3.392
Metal	Coefficient	$-11.881^{n.s}$	$-2.628^{n.s}$	$-3.145^{n.s}$
	Std. Error	10.615	3.616	3.499
Pharmaceutical	Coefficient	$-12.160^{n.s}$	$-1.363^{n.s}$	$-2.112^{n.s}$
	Std. Error	10.219	3.461	3.351
Services	Coefficient	$-5.130^{n.s}$	$-0.421^{n.s}$	$-0.711^{n.s}$
	Std. Error	10.525	3.552	3.438
	t-Statistic			
	Prob.			
Cross-Section Random		{9.332386}	{2.985032}	{2.951882}
		[0.6294]	[0.2768]	[0.3034]
Period Random		–	{3.414900}	{3.217414}
			[0.3623]	[0.3605]
Idiosyncratic Random		{7.161847}	{3.408263}	{3.106601}
		[0.3706]	[0.3609]	[0.3361]
Adjusted R-Squared		0.239735	0.030439	0.047920
F-statistic		11.27977	2.023455	2.640805
		(0.000000)	(0.002294)	(0.000026)

Note: ***p < 0.01; **p < 0.05; *p < 0.10; n.s: p > 0.05{} denoted S.D; [] denotes Rho. Source: Author Compilation.

Table 6 presents the empirical results of panel data regression analysis. This study examined whether the factor variables chosen could influence the extent of Shariah compliance or not. The dependent variables such as mandatory index, voluntary index and overall index are considered for the first, second and third panel data regression model, respectively. The empirical results of the analysis for the model I show that net sales (0.00) and growth (0.036) are found to be statistically significant. Subsequently, total assets are having negative coefficient (-5.352) with the corresponding p value (0.00) followed by leverage with negative coefficient (-17.886) and significant p value (0.00). On the other hand, market capitalisation, profitability, age of the company, board size, board independence and nature of industry were not observed to be statistically significant. Hence, it can be stated that net sales and growth influence the compliance of Shariah principles of the different companies. On the contrary, results showed that increase in total assets and leverage would lower the compliance of Shariah principles by the companies. The findings pertaining to effects of cross-section reported the estimates of σ_μ (cross-section) is 9.33 and σ_v (idiosyncratic random) is 7.16. It implies that the variance of the cross-section effects is 62% of the total variance, while the variance of the time effects is not there and the

variance of the remainder effects is 37.9% of the total variance.

Similarly, the results of analysis with regard to model II on the basis of sub-section as voluntary index reports that net sales (0.038) and board Independence (0.017) are the only significant variables found, than others in the model. But the coefficient of media & entertainment industry is negative (−9.309) and associated p value (0.016). Furthermore, the estimates of σ_μ (cross-section) are observed to be 2.9 and the estimate of σ_λ (time period) is 3.4 and the estimate of σ_ν (idiosyncratic random) is 3.4. It signifies that the variance of the cross-section effects is 27.6% of the total variance, whereas the variance of the time effects is 36.2% and the 36.1% comprises of the remainder effects variance out of the total variance.

Followed by the empirical results of previous one, model III such as overall index indicates that net sales (0.001) and board independence (0.010) are observed to be statistically significant. Whereas, media & entertainment industry is ascertained with negative coefficient (−8.617) and significant p value (0.021) which demonstrated an inverse relationship. These results are also consistent with the findings of second model namely voluntary index. The figure of σ_μ (cross-section) is found to be 2.9% and σ_λ (time period) is 3.2 and the figure of σ_ν (idiosyncratic random) is 3.1. It indicates that the variation in the cross-section effects is 30% followed by time effects is 36% of the total variance, however the variance of the remainder effects is 33.6% from the total variance. The findings of the present study are corroborated by the results of some previous studies that the firm size as measured by their total assets significantly influences the extent of Islamic social reporting [44] [46] [110]-[120]. Likewise, [20] [121] established no significant relationship between leverage and the extent of voluntary disclosure. Nevertheless, other studies did not observe a significant relationship between leverage and disclosure [50] [51] [122] [123].

5. Concluding Remarks

Islamic finance offers investment opportunities for the investors similar to conventional counterparts. However, Islamic finance differs with regard to compliance of Shariah principles from mainstream counterparts. The extent of compliance of Shariah principles could vary from one company to another company, nevertheless the firm-specific attributes tend to influence Shariah compliance by the companies.

Therefore, an attempt has been made to evaluate the relationship between company specific attributes and variation in Shariah compliance of the companies. In the last few decades there are several studies examining relationship between corporate specific attributes and the level of disclosure have been increasingly witnessed, overlooking the disclosure of Shariah compliance. Owing to this fact, the present study is motivated to examine the various factors chosen could influence the Shariah compliance of the companies. The result of this study reveals that the Shariah compliance of the companies is influenced by firm size

measured by net sales in all the three models. Hence, it appears that large company has a tendency to share more information in order to reduce the agency cost [46]. Since large companies comes in the focus of public attention which makes them comply more with the Shariah principles. Furthermore, board independence is found to be significant in the voluntary as well as overall model. It implies that the number of independent directors has a positive and noteworthy effect on Shariah compliance by the companies. However, the effect of media & entertainment industry is observed to be significant but with negative coefficient indicates that as many as companies in this industry, lower would be the compliance of Shariah principles. The reason could be variations in the functioning of companies from one industry to another. Moreover, the results also indicated a significant association between growth and Shariah compliance of the company in the mandatory model. This suggested that the companies with higher growth rate would conform the Shariah principles. Conversely, total assets and leverage having negative coefficient with the associated significant p value showed that the Shariah compliance is expected to come down with the increase in total assets and leverage of the company in the model I.

From the above discussion it is evident that the companies with large size and higher growth rate have significant mandatory compliance. Whereas, firm size measuring with net sales and board independence has significant voluntary, subsequently overall compliance. The findings of this study are having significant implications as it provided information on firm specific characteristics for the investors who are looking for investment in Shariah compliant companies. In this way, investor would be able to keep an eye on their investment. These results may also be advantageous to the regulators in making decisions. Future research should be conducted to examine the other factors which might have been overlooked to consider in this study and could influence the Shariah compliance of the companies.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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