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# The effects of corporate social disclosure on firm performance: empirical evidence from Bangladesh

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# The effects of corporate social disclosure on firm performance: empirical evidence from Bangladesh

## **Abstract**

**Purpose:** This study examines the influence of corporate social disclosure on firm performance within the context of Bangladesh.

**Design/methodology/approach:** This study develops hypotheses with the light of legitimacy and signalling theory using top 200 firms listed on the Dhaka Stock Exchange, Bangladesh. Corporate social disclosure (CSD) data are based on the period from 2011 to 2013, and the firm performance (FP) is based on the respective following year 2012 to 2014. A corporate social disclosure index (CSDI) including three categories (long-term, short-term and general disclosure) is constructed to measure the extent of social disclosures in annual reports. Firm performance is measured based on three indicators including Return on Asset (ROA), Market Capitalization, and Tobin Q. Ordinary Least Square (OLS) and Two Stage Least Square (2SLS) are used in analysing the data.

**Findings:** It is found that there is a significant relationship between corporate social disclosure and the following year's firm performance for every performance indicator. It is also found that long-term disclosure plays a key role in influencing the firm performance.

**Originality/value:** CSD is country-specific and, hence, the effects of corporate social disclosure on firm performance can vary from country to country. This study enhances understating of such relationship as it considers within the context of a developing country. The finding of this study is robust as every indicator of firm performance is found to be related positively to firm performance.

## **Disciplines**

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# **The Effects of Corporate Social Disclosure on Firm Performance: Empirical Evidence from Bangladesh.**

## **1. Introduction**

There is a growing interest in regards to corporate social disclosure of firm's activities to be disclosed in its annual report within the developed as well as the developing countries. It is argued that from a firm's perspective, any corporate disclosure may be incorporated in an annual report in two different forms: mandatory or voluntary. In general, most of the firm's activities of the financial nature are regulated by the enforced corporate acts or relevant accounting standards adopted by the respective country in which the firm is in operation. However, in respect to disclosure that is not regulated by law is called voluntary disclosure. Corporate social disclosure (CSD) is mostly considered voluntary disclosure that emphasises the consideration of moral obligation and accountability towards the society. Since corporate social disclosure has an influence on firm performance, therefore, academics, policymakers, governing bodies and investors, to name a few, from both the developed and developing countries perspective have become increasingly interested to enhance understanding of the relationship between corporate social disclosure and firm performance. However, the relationship from prior studies found to be inconclusive (Griffin and Mahon, 1997, Lu et al., 2014, Orlitzky et al., 2003).

As the literature is yet considered to be inconclusive and there are some factors which have been considered as constraints for such conclusiveness; and, therefore, there is a necessity to address those further. *First*, there is a view that statistical analyses to examine the relationship between disclosure and firm performance are not without limitations (Al-Tuwaijri et al., 2004,

Garcia-Castro et al., 2010). *Second*, as to the relationship between CSD and firm performance the selection of appropriate indicators of firm performance is challenging (Griffin and Mahon, 1997, Lu et al., 2014, Orlitzky et al., 2003). *Third*, categories of firm performance measurements (i.e., accounting based, market- based and mixed) are also subject to limitations (Richard et al., 2009).

There is a view that corporate social issues in developed countries are monitored by strong regulated monitoring bodies as well as the interested parties in the society. In contrast, in developing countries such issues might not be monitored effectively for many reasons including poverty, corruption, social inequalities and mismanagement, small capital market, and weak regulations. As such, CSD is mainly considered to be an occidental concept of western countries due to strong corporate regulations and standards compare to developing countries (Chapple and Moon, 2005). Some of the extant CSD studies from developing country context were also seen to be consistent with such perceptions with exceptions (Belal, 1999, Belal, 2001, Chapple and Moon, 2005, Ratanajongkol et al., 2006, Sobhani et al., 2009). Such findings lead to further examine as to whether firms from developing country contexts use CSD as effective mediums of communication with various stakeholders which ultimately effects firm performance (Aras et al., 2010). That is, to reiterate, it is apparent that the effects of CSD on firm performance within developing countries are not documented in an extensive manner compare to those carried out using developed country contexts.

Since CSD varies in annual reports from country to country (Boesso and Kumar, 2007, Burton et al., 2000) as there are no unified voluntary disclosure practices to be applied; therefore, the same occidental concept of CSD may not be applicable for developing country concept due to different cultural models and traditional customs (Burton et al., 2000, Disu and Gray, 1998,

Edmondson and Carroll, 1999). Thus far, the limited studies that exist using developing country contexts (Lu et al., 2014, Orlitzky et al., 2003) includes China, Malaysia, and Singapore (Ahmad et al., 2003, Eng and Mak, 2003, Haniffa and Cooke, 2002, Ho and Shun Wong, 2001, Huafang and Jianguo, 2007).

The objective of this study is two folded. *First*, it is to investigate the effects of CSD on firm performance by addressing the constraints of prior studies. *Second*, this study is to examine the effects of CSD on firm performance within the context of a developing country.

Bangladeshi context is considered for this study. Such a consideration is motivated for the following reasons. *First*, there exist a limited number of studies that have examined the effects of CSD to firm performance (FP) in Bangladesh. In addition, CSD research in Bangladesh are mainly limited to explore the extent of corporate social issues in annual reports (Azim et al., 2009, Belal, 1999, Belal, 2001, Belal, 2008, Belal and Momin, 2009, Kamal and Deegan, 2013, Sobhani et al., 2009) and determinants of CSD (Khan et al., 2013, Muttakin and Khan, 2014, Rashid and Lodh, 2008); rather than examining the relationship between CSD and FP. As such, the effects of CSD on firm performance are not well documented yet in Bangladeshi context. *Second*, Bangladesh economy is progressing with an inspiring track record with the growth of nearly six percent per year sustained over the past decade. A recent report from World Bank<sup>1</sup> and PWC<sup>2</sup> also forecasts that Bangladesh will be one of the emerging economies within a few decades. Accordingly, Bangladesh government is also keen to improve social condition at both

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<sup>1</sup> <https://www.worldbank.org/en/news/feature/2016/04/30/bangladesh-development-update-bangladesh-economy-requires-focus-on-sustainable-and-inclusive-growth-moving-forward>

<sup>2</sup> <http://www.pwc.com/gx/en/issues/the-economy/assets/world-in-2050-february-2015.pdf>

micro and macro level<sup>3</sup>. As a result, it is reasonable to believe that firms from Bangladesh may consider social disclosure to legitimise firm activities as a part of social and global concerns. Security Exchange Commission (SEC) of Bangladesh was also reformed in 2011 to ensure more transparency and disclosure from the listed firms. Moreover, a firm within developing countries like Bangladesh highly relies on foreign aid and investments.

Thus, the remainder of this paper is organised as follows. The next section documents CSD and FP with the lens of legitimacy and signalling theories. A review of the literature on the effects CSD on FP is addressed afterward. This is followed by an elaboration on the linkage between CSD and FP within Bangladeshi context. This is followed by the development of hypotheses for this study. Next, the details of the research method used in the study are addressed. The results of this study are then shown in the following part. In the final section, the implications, limitations and the further scope are elaborated.

## **2 Theoretical Background and Hypotheses**

### **2.1 Theoretical Frameworks**

There exist several theoretical stances that have been adopted by prior studies in examining the relationship between corporate social disclosures and firm performance within developed as well as developing country contexts. Among the theories, legitimacy theory is one of the widely considered theory within voluntary disclosure context. The legitimacy theory is based on the view of a social contract that exists between the firm and society. Suchman (1995)

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<sup>3</sup> <http://www.worldbank.org/en/news/feature/2013/04/13/bangladesh-development-update-slower-yet-healthy-growth-with-remarkable-development-progress>

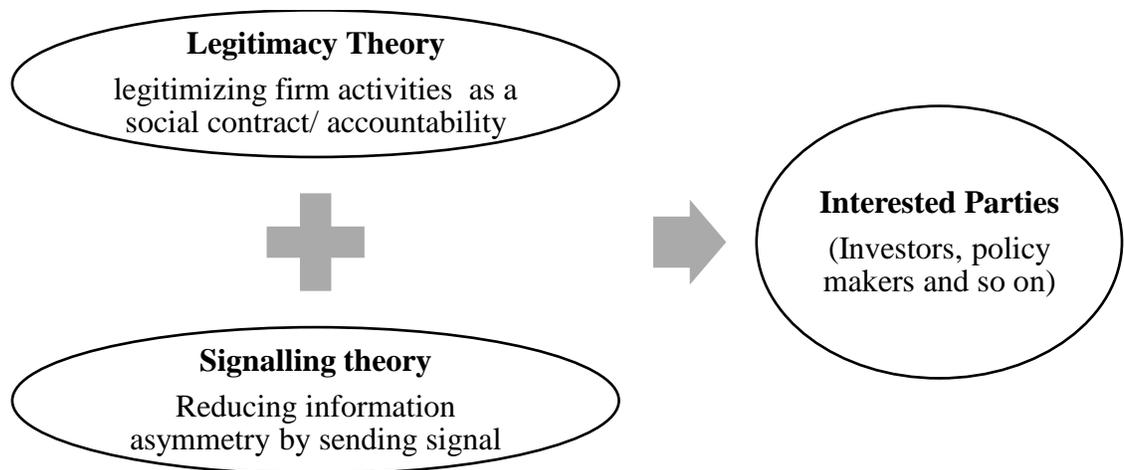
outlines legitimacy concept as “generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions” (p 574). In addition, according to Guthrie and Parker (1989) & O’Donovan (2002), legitimacy theory is based on the concept that a firm should operate by satisfying the expectation of the society. Furthermore, legitimacy theory explains how firms may intend to legitimise their operational activities by engaging additional information through voluntary disclosure (An et al., 2011, Deegan et al., 1996, Deegan and Gordon, 1996). For legitimising firm’s operational activities, firm provide additional information through voluntary disclosure like social disclosure. A firm also considers such disclosure to substantiate firm’s accountability towards the society as an element of a social contract as well as to receive a positive impression from various interested parties within the society. As a result, using voluntary disclosure perspective, a wide number of studies have explored such relationships using legitimacy theory (Deegan, 2002, Guthrie et al., 2006, Khan et al., 2013, Khan, 2010, Muttakin and Khan, 2014, O’Donovan, 2002).

There is a view that some significant features of legitimacy theory can explain corporate social disclosure aspects more effectively. *First*, according to legitimacy theory, legitimising firm activities means establishing that firm activities (operational) comply with the social values of the society in which it operates, and also those activities must be acknowledged through firm’s disclosure (Dowling and Pfeffer, 1975). As a result, a firm may motivate to focus on voluntary disclosures (Deegan, 2002). Therefore, it is argued that firm’s legitimising efforts and voluntary disclosure may have a close interaction. *Second*, from corporate social disclosure perspective, legitimising firm’s activities are much significant for firm’s image and value through which firms try to communicate with the interested parties (Deegan, 2002, Deegan et al., 2002, Guthrie

et al., 2006, O'Donovan, 2002). *Finally*, through corporate social disclosure a firm may want to convey firm's strategic value and the potential value-creating capacities. Moreover, legitimacy theory can be used to explore the current status of voluntary disclosure as well.

Signalling theory, on the other hand, posits the concept of disclosure from a different viewpoint. It views disclosure in annual reports can provide a signal and, therefore, facilitates effective communication with the interested parties. Signalling theory originally constructed by (Spence, 1973) to explain the behaviour of labour market. (Morris, 1987) advocates, the concept of signalling theory is more applicable in accounting studies to explore information asymmetry. An et al. (2011) note that firm may reduce information asymmetry by considering extra information (mostly positive information) as a signal. Thus, signalling may have an impact on interested parties' perceptions towards the firm performance (Whiting and Miller, 2008). It is also argued that the concept of signalling is associated with voluntary disclosure (Watson et al., 2002, Whiting and Miller, 2008, Xiao et al., 2004). According to signalling theory, firms can differentiate their activities by sending signals to the interested parties for developing a positive image. Whiting and Miller (2008) argue that consideration of such a signal a firm may help encouraging interested parties to reassess the value of the firm (Botosan, 1997, Botosan and Plumlee, 2002, Dhaliwal et al., 2011, Sengupta, 1998). As such, firms may also create a positive image and reduce information asymmetry by considering corporate social disclosure as a signal of firm's social commitment (Anderson and Frankle, 1980, Shane and Spicer, 1983).

Based on the above discussions, this study considers using legitimacy and signalling theories. The considered theoretical perspectives of this study are presented in Figure 1.



**Figure1: Theoretical perspective for this study.**

## **2.2 Literature on the effects of corporate social disclosure on firm performance**

There exists plethora of studies conducted on the effects of corporate social disclosure on firm performance using developed country context. Several meta-analyses show that a significant number of prior studies have reported mixed findings (Garcia-Castro et al., 2010, Mathews, 1997, Orlitzky et al., 2003). De Klerk et al. (2015) report that CSD has a positive effect on the share price of a firm. They have examined 89 largest firms in the UK for the year 2007-08. Within the research model, their study considers firm size and leverage as a control variable for the firm performance. They argue that having more CSD reduces the information asymmetry. As a result, the investors might assess the risk of the firm more efficiently and lead to a better firm performance (share price). Qiu et al. (2016) suggest a positive relationship regarding the effects of CSD on firm performance (market-based measure) after examining 152 firms from FTSE 350 for the year 2005 to 2009. They argue that having CSD in annual reports can act as firm's competitive advantage which can lead to a better firm performance.

Within the context of developing/emerging countries, Choi et al. (2010) examine Korean firms by considering 1222 firm-years using data from 2002 to 2008. Their study has considered disclosure index using both weighted and un-weighted indices and several firm performance indicators including ROE, ROA and Tobin's Q. Their findings show that the weighted CSD index affects FP, but un-weighted index of CSD is not. Platonova et al. (2016) found that CSD has an influence on firm performance. Their study considers 24 Islamic banks in Gulf Cooperation Council (GCC - 9 from Bahrain, 3 from Qatar, 3 from Kuwait, 4 from Saudi Arabia and 5 from UAE) over the period 2000 to 2014. They rely on accounting based measurements (ROA and ROE) and have found a positive relationship. They have further investigated on the relationship between CSD categories and firm performance as well, but they could not find any significant association among the considered categories.

### **2.3 Literature on the relationship between CSD and firm performance within Bangladesh**

It is from late '90s, researches on corporate social issues have been considered by several researchers in Bangladesh. Belal (1999) is the pioneer of social reporting studies in Bangladeshi context. In Bangladesh, prior studies regarding CSD are mostly emphasised to assess the extent of disclosure rather than examining the relationship between the CSD and FP (Azim et al., 2009, Belal, 2008, Belal and Momin, 2009, Khan et al., 2009, Sobhani et al., 2009).

Although there is an increasing trend of corporate social disclosure by Bangladeshi firms, but, to reiterate, the effects of CSD on firm performance has not yet been well researched. For example, Hossain et al. (2015) report that CSD has a positive impact on firm performance for Bangladeshi firms. They have considered 131 listed firms in Bangladesh by excluding Treasury

Bond and Mutual Funds for the period of 2008 to 2012. In light of legitimacy theory, their study suggests that CSD influences positively on return on asset and return on equity, but fails to find such effects using Tobin Q.

## **2.4 Hypotheses Development**

It is apparent in the prior studies from both developed and developing country contexts that there is mixed evidence (positive, negative and neutral) as to the effects of corporate social disclosure on firm performance. Therefore, consistent with the considered theories, the following hypotheses are developed to examine the effects of CSD on FP for Bangladeshi contexts:

*H1: Corporate Social Disclosure is positively associated with Firm Performance.*

*H1(a): Corporate Social Disclosure is positively associated with Return on Asset*

*H1(b): Corporate Social Disclosure is positively associated with Market Capitalization*

*H1(c): Corporate Social Disclosure is positively associated with Tobin Q*

## **3 Empirical tests**

### **3.1 Sample Selection**

For collecting corporate social disclosure data annual reports of the firms have been considered as a source. There are some significant reasons to consider annual reports as a source of data. *First*, an annual report is considered as a source for most of the information of a firm (Botosan, 1997) because significant issues and concerns of a firm are expressed comprehensively through the annual report (Abeysekera and Guthrie, 2005, Khan et al., 2009). *Second*, annual

report is easily accessible source of information (Unerman, 2000) that can be obtained in both hard copies as well as electronically. Therefore, for exploring CSD from a reliable source, this study considers annual reports as source of data.. However, for gathering firm performance, Bloomberg Database has been considered instead that of relying on annual reports. It should be noted that some financial performance information such as market capitalization data of a firm is not available from the annual reports. Therefore, there is a necessity to collect all the market data from one authentic platform; this study thus relies on Bloomberg database.

Top 200 firms (based on market capitalization) listed on the Dhaka Stock Exchange (DSE) are considered as the sample for this study. Having a higher marker capitalization is deemed to have extra resources compare to other firms (Adams et al., 1998, Andrew et al., 1989) and expected to be more proactive for social disclosure perspectives. Within the top 200 firms, there are some sectors including the Bond, Insurance, and Mutual Funds have extremely different reporting structure for firm performance data; therefore, Bond, Insurance and Mutual Funds sectors are not considered for this study. After excluding these sectors, a final 134 firms (68% of total market equity and 45.0% of total sample) have been considered.

It should be noted that Bangladesh share market confronted by a severe stock market collapse due to price bubble in 2010 (Barua et al., 2014) and gradually turn as normal in 2011. As a result, the consideration of data from 2011 may help to avoid the distortion from the share market collapse. Therefore, in regards to corporate social disclosure data, this study considers from the year 2011 and onwards. In addition, the data of FP variables are collected from annual reports for the financial year 2012 to 2014 to apply one year lag. The lag concept is being implemented with the argument that the effects of CSD are observable in next available financial

period and this approach is consistent with the prior studies (Harjoto and Jo, 2015, Mahoney and Thorne, 2005, Waddock and Graves, 1997). Therefore, this study collects data from 2011 to 2013 for corporate social disclosure and 2012 to 2014 for firm performance data. 134 firms for three years resulted in a final sample of 402 firm-year observations. Table 1 is presented below to show the sector wise sampling information.

Table 1: Sector-wise sample details

Sector	Total Firms	Firms within Top 200	Firms included as sample	Observed Firm Years
Bank	30	30	30	90
Cement	7	7	6	18
Ceramic	5	3	3	9
Engineering	26	18	12	36
Food & Allied	17	9	8	24
Fuel & Power	15	13	12	36
IT	6	2	1	3
Miscellaneous	9	6	4	12
NBFI	23	22	19	57
Pharmaceutical	24	19	16	48
Service & Real Estate	3	3	3	9
Tannery	5	3	3	9
Telecommunication	2	2	2	6
Textile	31	18	13	39
Travel & Leisure	3	2	2	2
Bond	3	2	0	0
Insurance	46	31	0	0
Mutual Fund	41	10	0	0
Paper & Printing	1	0	0	0
Jute	3	0	0	0
<b>Total</b>	<b>300</b>	<b>200*</b>	<b>134**</b>	<b>402</b>

\* Top 200 covers 77% of Total Market Equity & 67% of Total Sample Size

\*\* Selected sample covers 68% of Total Market Equity & 45% of Total Sample Size

### 3.2 Corporate Social Disclosure Index- Independent Variable

Corporate Social Disclosure Index is considered as a proxy on the extent of CSD. It is measured in terms of various social features reported in the firm's annual report. Consistent with

earlier studies (Hackston and Milne, 1996, Haniffa and Cooke, 2005, Kamal and Deegan, 2013) a checklist of 30 items has been selected to assess the extent of CSD within the annual reports.

Selected 30 items of corporate social disclosure are sub-categorised based on various social contexts. Categorising disclosure is an important factor. (Meek et al., 1995). 30 items are categorised into a wide range of categories including governance, strategy, employee, customer, donation and generic concept of the social disclosure are captured (Hackston and Milne, 1996, Haniffa and Cooke, 2005, Kamal and Deegan, 2013).

As well, corporate social activities are considered as a strategic tools as it has the potential to develop competitive advantage of a firm (Mishra and Suar, 2010) as such the selected CSD items could be then viewed from strategic management context. As the strategic management needs to be focused for both long-term and short-term (Hill et al., 2014); therefore, the selected CSD items could be re-categorised into sub-categories: long-term, short-term and generic CSDs. That is, the selected 30 items have been categorised within three sub-categories as attached in Appendix A. These include 19 items for long term, 9 items for short-term and 2 items for general categories.

Content analysis has been applied to measure corporate social disclosure as it is the most common method of measuring CSD (Yamagami and Kokubu, 1991). Content analysis is a method of capturing the text (or content) into code within several categories depending on selected criteria and widely used in the literature as a reliable method (Weber, 1985; Guthrie and Petty, 2000 Rashid 2015). Regarding the score calculation, every disclosure item has been given same significance or weight and this approach is consistent with prior studies (Esa and Anum Mohd Ghazali, 2012, Haji, 2013, Khan et al., 2013, Mohd Ghazali, 2007, Muttakin and Khan,

2014, Said et al., 2009). That is, unweighted calculation has been applied in this study as well. In particular, a firm is awarded a value of 1 if an item included in the checklist is disclosed and a value of 0 otherwise. However, some disclosure items may not be applicable for every sector that may distort the score of the corporate social disclosure index. To resolve the potential problem, consistent with the prior studies, this study also considers maximum possible score to calculate CSD index (CSDI) (Chau and Gray, 2002, Cooke, 1989, Ho and Shun Wong, 2001, Lim et al., 2007, Owusu-Ansah, 1998). For example, irrelevant items for any particular firm (sector) is considered as “Not Applicable” and CSDI is calculated by considering the proportion of disclosures made by the firm and maximum possible score for that firm instead that of 30 items. Such judgement is possible after reading the entire annual reports (Cooke, 1992, Khan et al., 2013). Therefore, the measurement of voluntary disclosure is based on the following un-weighted index.

$$CSDI_i = \frac{\sum_{i=1}^n X_{ij}}{n_j}$$

Where,

CSDI<sub>j</sub> = Corporate Social Disclosure Index of  $j^{th}$  firm categories,

$N_j$  = the maximum number of items which the firm is expected to disclose.

$X_{ij}$  = 1 if  $i^{th}$  item is disclosed, 0 if  $i^{th}$  item is not disclosed

As to the constructed corporate social disclosure index, it is also essential to confirm the reliability. Internal consistency is a widely used technique for assessing the reliability of a measurement (Hassan and Marston, 2010, Hassan et al., 2009). Internal consistency means the degree to which the items in a test measure the same construct. Consistent with prior studies, Cronbach’s coefficient alpha (Cronbach, 1951) has been applied to check reliability (Botosan, 1997, Gul and Leung, 2004, Khan et al., 2013).

### **3.3 Firm Performance- Dependent Variable**

Measuring firm performance in an appropriate manner is significant as various contingent factors are related to the measurement processes (Orlitzky et al., 2003, Peloza, 2009, Richard et al., 2009, Wu, 2006). In the literature a large number of indicators have been considered to measure firm performance. These wide range of indicators are categorised into three categories such as accounting based measure (i.e., return on assets, return on sales), market based measure (i.e., market capitalization, earning per share) and Mix measure (Tobin Q).

Within three types of firm performance measurement approaches, accounting measurement is used most commonly (Richard et al., 2009). It should however be noted that manipulation scope of accounting number and selecting a particular method may lead to a deception (Azim, 2012, Richard et al., 2009) as well as inconsistency in performance measurements. Market based measurement is preferred as it is forward looking and also incorporate intangible assets of a firm (Fisher and McGowan, 1983, Lev, 2000). Moreover, market based measurement may not sometime reflect accurate performance because of market inefficiency. (Bacidore et al., 1997, Joh, 2003). Besides, accounting and marked based performance measurement, a mix method, is also available but not free from limitations (Richard et al., 2009).

Although category of firm performance indicator may have some unique features and limitations; therefore, to overcome such pitfalls, a large number of prior studies put forward the concept of considering multiple measurement approach (Dalton et al., 1998, Dalton et al., 1999, Griffin and Mahon, 1997, Orlitzky et al., 2003). Accordingly, this study adopts all three types of measurements: accounting based, market based and mix measures. Within these three categories, a large number of prior studies consider either return on assets (Aerts et al., 2008, Eng and Mak,

2003, Patelli and Prencipe, 2007), or market capitalization (Abdolmohammadi, 2005, Abdulrahman Anam et al., 2011, Brammer et al., 2006), or Tobin Q (Agrawal and Knoeber, 1996, Rashid et al., 2010, Rashid, 2009) as a representation of accounting, market based and mixed measurement respectively. Table 2 summarizes all the indicators of firm performance with the measurement processes,

Table 2: Firm Performance variables with measurement process

Measurement Category	Variable	Measurement
Accounting-Based Measure	Return on Asset	Net Profit/ Total Asset
Market-Based Measure	Market Capitalization	Multiplying total common share outstanding with the current value of common stock
Mixed Measure	Tobin Q	$\frac{(\text{Market Value of the Equity} + \text{Book value of the debt} + \text{Book value of Preferred Stock})}{\text{Book value of Assets}}$

### 3.4 Control Variables

Similar to several extant studies this study considers some unique control variables that may mediate the effects of corporate social disclosure on firm performance. The considered control variables are: (1) firm size (2) leverage of the firm (3) industry type (4) board size and (5) board independence

Firm size is found to be an important factor for firm performance as larger size of a firm may have the privilege to achieve several capabilities to enhance a good performance (Majumdar and Chhibber, 1999, Short and Keasey, 1999). Accordingly, firm size is considered as a control variable for this study. Consistent with the prior studies, firm size is measured by natural logarithm of total asset (Cheng et al., 2014, Khan et al., 2013). Social disclosures might vary

from industry to industry as the context of firm operation is not same. By considering this and consistent with the prior studies, industry has been considered as control variable and measured by using Dummy variable (value 1 = firm belongs to financial industry, value 0 = otherwise) (Alsaeed, 2006, Cooke, 1992). Leverage of a firm might also moderate the firm performance as it stimulates the cost of debt. Therefore, consistent with the prior studies it is considered as a control variable and measured as Total Debt/ Equity (Cheng and Courtenay, 2006, Ho and Shun Wong, 2001). Besides these control variables, from corporate governance characteristics board size and board independence have been considered as important factors for firm performance (Dalton et al., 1998, Dalton et al., 1999). Board size is important for firm performance as it provides the opportunity of gathering a wide range of skills, experience, knowledge and network provides that may lead to the firm performance. In addition, having independent directors may also have an impact on the decision making and may contribute to the firm performance. Therefore, board size and it's independence have also been considered as moderators of firm performance. Consistent with prior studies, board size is measured the natural logarithm of total board members (Carter et al., 2003) and board independence as the proportion of independent directors within the board (Eng and Mak, 2003, Ho and Shun Wong, 2001, Khan et al., 2013)

### 3.5 Regression Models Specification

The basic models are presented as follows.

$$\begin{aligned}
 FP_{it+1} &= a + \beta_1 * CSDI_{it} + \beta_2 * FSize_{it} + \beta_3 * Lev_{it} + \beta_4 * Ind_{it} + \beta_5 * BSize_{it} + \beta_6 * BCom_{it} + \varepsilon_{it} \dots 1 \\
 ROA_{it+1} &= a + \beta_1 * CSDI_{it} + \beta_2 * FSize_{it} + \beta_3 * Lev_{it} + \beta_4 * Ind_{it} + \beta_5 * BSize_{it} + \beta_6 * BCom_{it} + \varepsilon_{it} \dots 1.1 \\
 Mcap_{it+1} &= a + \beta_1 * CSDI_{it} + \beta_2 * FSize_{it} + \beta_3 * Lev_{it} + \beta_4 * Ind_{it} + \beta_5 * BSize_{it} + \beta_6 * BCom_{it} + \varepsilon_{it} \dots 1.2 \\
 TobinQ_{it+1} &= a + \beta_1 * CSDI_{it} + \beta_2 * FSize_{it} + \beta_3 * Lev_{it} + \beta_4 * Ind_{it} + \beta_5 * BSize_{it} + \beta_6 * BCom_{it} + \varepsilon_{it} \dots 1.3
 \end{aligned}$$

For conducting statistical analysis, it is important to satisfy the assumptions of statistical analyses such as normality, multicollinearity, heteroscedasticity and endogeneity (Rashid, 2015a, Rashid, 2015b). Normality test (Residual Test/Histogram) for the regression equation showed a “Bell Shape” and confirms the normality of the data. For this study, all the models produce the bell shape except 1.3 regarding tobin Q. However, Coakes and Steed (2001) argue that the violation of normality is insignificant with a larger sample (greater than 30). Therefore, having larger sample (N=402) and bell shape confirms the normality and dismiss the concern.

Multicollinearity refers to high correlations among the independent (or explanatory) variables and having a high degree of correlation among the explanatory variables lead to a decisive result. Therefore, these variables must be removed. The correlation matrix of the explanatory variables (Table 3) shows that there is no strong correlation between the variables because the correlation coefficients are very small (less than 0.62 or negative). Further, the variance inflation factors (VIFs) of all the variables are less than 3.04, while it is argued that a VIF greater than 10 is an indication of multicollinearity (Dielman, 2001, Gujarati, 2003, Haniffa and Cooke, 2005). In regards to heteroscedasticity, the plot of standardized residuals (ZRESID) versus the standardized predicted value (ZPRED) of the model does not look like a funnel or curve shape representing that there is no proof of heteroscedasticity. However, the chi-square statistics and corresponding *p*-value of Breusch–Pagan–Godfrey test report that heteroscedasticity is present. This problem is resolved by using correction technique for unknown heteroscedasticity of White (1980)

(INSERT TABLE 3 ABOUT HERE)

Endogeneity is the relationship between any of the explanatory variables with the error term. Existence of endogeneity turns the ordinary least square (OLS) estimate as inconsistent, and instrumental variable techniques are used to address endogeneity. Consistent with the suggestion of Gujarati (2003) and following prior studies including Rashid (2015a) & Rashid (2015b) the *F*-test for the predicted value of CSDI was completely or marginally insignificant. Considering ROA as a measurement of firm performance ( $F = 0.15$  and relevant  $p = 0.6953$ ), Market Capitalization as a measurement of firm performance ( $F = 3.64$  and relevant  $p = 0.0634$ ) and Tobin Q as a measurement of firm performance ( $F = 0.23$  and relevant  $p = 0.6302$ ), the consistency of OLS and IVs could be confirmed as the finding of these tests indicates that there are no signs of potential endogeneity between CSDI and the firm performance.

### **3.6 Descriptive Statistics**

Descriptive statistical analyses of the variables are presented in Table 4. This statistics is employed to determine the distribution and measurement of central tendencies of the variables and include the mean, median, maximum, minimum, and standard deviation. The descriptive statistics reveal that the average corporate social disclosure index is 0.16 with a range from 0 to 0.53. Regarding the firm performance, the average of return on asset, market capitalization and tobin Q is .047, 22.58 and 1.29 respectively. The range for return on asset, market-capitalization and Tobin Q is -.096, 19.67 and .05 to .40, 26.91 and 10.54 respectively.

(INSERT TABLE 4 ABOUT HERE)

## 4 Empirical Results

### 4.1 Results

The regression coefficients of the relationship between corporate social disclosure and firm performance are presented in Table 5. Based on the regression coefficients CSD positively influences the firm performance. In particular, the coefficients of Corporate Social Disclosure is found to be positive and significantly related to ROA (pooled OLS=0.008<sup>\*\*\*</sup>, 2SLS=0.000<sup>\*\*\*</sup>), MCAP (pooled OLS=0.000<sup>\*\*\*</sup>, 2SLS=0.066<sup>\*</sup>) and Tobin Q (pooled OLS=0.010<sup>\*\*\*</sup>, 2SLS=0.024<sup>\*\*\*</sup>). Therefore, the results of pooled OLS and 2SLS suggest that the CSD positively associated with the firm performance in a significant manner. These findings suggest that CSD of a firm is likely to be positively affecting the firm performance. These findings could be considered as a strong support as the data used in this study are panel data, and heterogeneity issue has been resolved, no endogeneity is observed and two different statistical models (pooled OLS, 2SLS) have contributed the same results. The results of this study are consistent with legitimacy and signaling theory. As on the concept of both theories, firms consider CSD as signal of effective communication to reduce information asymmetry and approach of legitimizing operational activities (Deegan et al., 2002, Hossain et al., 2015, Morris, 1987, Whiting and Miller, 2008). Such consideration helps a firm to create a positive impression regarding the firm activities among the interested parties, which lead to a better firm performance. In other word, information asymmetry reduces due to CSD and facilitates to develop a good firm value within the market. Results of this study establish these theoretical arguments. Therefore, the findings of these results may provide a strong support in favor of considering social issues from firm level and policymakers may encourage on social issues more efficiently. Similarly, firms may also find

justification to encourage social issues as a part of regular operation in strategic level as it stimulates firm performance.

(INSERT TABLE 5 ABOUT HERE)

## 4.2 Robustness check

To confirm the robustness of the result, this study conducts two further tests. *First*, this study examines the effects of three categories of CSD (long, short, general) on following year firm performance by replacing overall CSD. *Second*, an additional endogeneity test has been applied to check the causality issue.

### 4.2.1 The effects of the categories of corporate social disclosure on firm performance

To confirm the robustness of the result a further test has been applied by considering each category of social disclosure (long-term, short-term and generic disclosure) over the firm performance. In doing so, the following models have been applied.

$$ROA_{it+1} = a + \beta1 * LSD_{it} + \beta2 * SSD_{it} + \beta3 * GSD_{it} + \beta4 * FSize_{it} + \beta6 * Lev_{it} + \beta6 * Ind_{it} + \beta7 * BSize_{it} + \beta8 * BCom_{it} + \varepsilon_{it} \dots (1)$$

$$Mcap_{it+1} = a + \beta1 * LSD_{it} + \beta2 * SSD_{it} + \beta3 * GSD_{it} + \beta4 * FSize_{it} + \beta6 * Lev_{it} + \beta6 * Ind_{it} + \beta7 * BSize_{it} + \beta8 * BCom_{it} + \varepsilon_{it} \dots (2)$$

$$TobinQ_{it+1} = a + \beta1 * LSD_{it} + \beta2 * SSD_{it} + \beta3 * GSD_{it} + \beta4 * FSize_{it} + \beta6 * Lev_{it} + \beta6 * Ind_{it} + \beta7 * BSize_{it} + \beta8 * BCom_{it} + \varepsilon_{it} \dots (3)$$

The regression coefficients of the effects of various categories of CSD on firm performance are presented in the Table 6. Based on the regression coefficients, strategic/ long term social disclosure is the key factor for improving firm performance. From every indicator of firm performance context, it is found that strategic/ long term CSD positively (ROA=0.015\*\*\* ;

Market Capitalization=0.000<sup>\*\*\*</sup> and Tobin Q=0.010<sup>\*\*\*</sup> ) influence firm performance. In contrast, short-term is not significantly (ROA=0.712; Market Capitalization=0.490; and Tobin Q=0.505) associated with firm performance. Regarding the effects of generic CSD, firm performance (ROA and Tobin Q) is not affected (ROA=0.506; and Tobin Q=0.844) except for the market capitalization (0.002<sup>\*\*\*</sup>). This provides evidence that considering social disclosure from the strategic context is the key to lead the firm performance. Therefore, these findings may provide a strong support to the policy maker as well as the firm to consider the social issue from the strategic level with a long-term vision in the context of Bangladesh. Regarding the firm performance from market capitalization measurement, it is solely reflected the investors perception while accounting and mixed measure the investors perception is not directly related. As a result, it could be assumed some investors from Bangladesh might not be well knowledgeable regarding the social disclosure with exceptions.

(INSERT TABLE 6 ABOUT HERE)

Based on the regression coefficients long-term corporate social disclosure is the key to influence firm performance as the other types are not significantly associated with firm performance. This result suggests that considering social issues with a focus from strategic view helps to stimulate firm performance.

#### **4.2.2 Additional Endogeneity Test**

In regards to the relationship between firm performance and corporate social disclosure, reverse causality problem is a concern as in the literature. It is also documented that firm performance also have an influence of the corporate social disclosure (Branco and Rodrigues, 2008, Qiu et al., 2016). This study already employed the lag of social disclosure to avoid such

causality problem. To confirm the reverse causality issue further, a final check of endogeneity by a simple crossed-lagged regression model has been applied by following (Davidson et al., 1997) and Rashid (2015a). In so doing, the following six models have been considered:

$$ROA_{it+1} = a + \beta_1 * ROA_{it} + \beta_2 * CSDI_{it} + Other\ control\ Variables + \varepsilon_{it} ..(1)$$

$$Mcap_{it+1} = a + \beta_1 * Mcap_{it} + \beta_2 * CSDI_{it} + Other\ control\ Variables + \varepsilon_{it} ..(2)$$

$$TobinQ_{it+1} = a + \beta_1 * TobinQ_{it} + \beta_2 * CSDI_{it} + Other\ control\ Variables + \varepsilon_{it} ..(3)$$

$$CSDI_{it+1} = a + \beta_1 * TobinQ_{it} + \beta_2 * CSDI_{it} + Other\ control\ Variables + \varepsilon_{it} ..(4)$$

$$CSDI_{it+1} = a + \beta_1 * ROA_{it} + \beta_2 * CSDI_{it} + Other\ control\ Variables + \varepsilon_{it} ..(5)$$

$$CSDI_{it+1} = a + \beta_1 * Mcap_{it} + \beta_2 * CSDI_{it} + Other\ control\ Variables + \varepsilon_{it} ..(6)$$

Within the first three equations, the following year firm performance is considered as a dependent variable over the current year social disclosure and firm performance. In the following three equations, next year social disclosure is considered as dependent by considering current year firm performance and social disclosure as independent variable. Based on the results of first three equations, it has been supported that the current year firm performance is significantly associated with the future firm performance. However, based on the result of last three equations, current year firm performance is not found to be affecting the following year corporate social disclosure. The result from the above six equations can be concluded that there is no reverse causality between firm performance and corporate social disclosure within this research context.

## 5. Summary and conclusions

This study examines the effects of corporate social disclosure on firm performance by considering the year 2011 to 2013 and 2012 to 2014 for CSD and firm performance respectively within Bangladesh context as a developing country.

The findings of this study suggest that CSD of a firm has significant positive effect on the firm performance. These results verify the hypotheses and are also consistent with the theoretical framework that predicts a positive association between CSD and firm performance. It should also be noted that the finding is robust for several reasons. *First*, firm performance from categories of indicators including return on asset, market capitalization, and tobin Q are significantly related to the firm performance. This finding is also consistent with prior studies that investigate the effects of CSD on firm performance (Hossain et al., 2015, Platonova et al., 2016). However, very limited studies confirm such result by considering every indicator of firm performance. *Second*, from the endogeneity test of this study further confirm that it is a strong finding as there is no endogeneity problem. *Finally*, this study conducts an additional test to find which category is the key factor for firm performance and report that long-term social disclosure is the key to stimulating firm performance. However, this study is not free from limitations. *First*, this study limits the social disclosure within 30 items for conducting the content analysis. Future study may consider interview or case study to gather entity specific information for such revelations. *Second*, the sample is limited to the top 134 firms in Bangladesh and the result might not be applicable for all firms.

## Appendix A

Main Disclosure	Disclosure Category	Disclosure Details
Corporate Social Disclosure	Strategic or long-term focus	<ol style="list-style-type: none"> <li>1. Existence of 1 committee for social affairs.</li> <li>2. Board takes care about social issues as a significant matter.</li> <li>3. Governance encompasses ethics, transparency and accountability.</li> <li>4. A commentary on behalf of the board about the key relationship with employee and other significant stakeholders.</li> <li>5. Firm policy to promote social welfare.</li> <li>6. Key person's (CEO or chairman) views about social issues.</li> <li>7. CEO statement about considering social issues to the shareholders/ stakeholders.</li> <li>8. A statement that the firm maintains regular review of social factors.</li> <li>9. Firm has specific policy for maintaining human rights.</li> <li>10. Firm has a specific code of conduct to main non-discrimination in regards to gender, race, religion or ethnic group.</li> <li>11. Firm activities are affiliated with International Labour Organization.</li> <li>12. Firm has a specific policy about child labour.</li> <li>13. Firm has a specific policy about working hour and overtime payment.</li> <li>14. Firm has specific and clear guideline about employee promotion</li> <li>15. Firm has faculties about staff training, education, prevention and control program to manage or avoid work related injuries.</li> <li>16. Firm has a budget for staff welfare.</li> <li>17. Amount spent of staff welfare has mentioned.</li> <li>18. Firm has a clear guideline to handle complained about harassment or abuse of any employee at any form.</li> <li>19. Firm has a specific policy regarding security and employment of workers</li> </ol>
	Short-term focus	<ol style="list-style-type: none"> <li>20. Community involvement or donation on social issues.</li> <li>21. Firm has a policy to prioritise greater benefit for the welfare of their society.</li> <li>22. Firm has policies and procedure to about anti-corruption.</li> <li>23. Firm has policy to provide a fair chance to work as a trainee to various education institute students.</li> <li>24. Firm has policy to maintain local and national culture and protection of personal information.</li> <li>25. Firm has a policy about disadvantage side of the society.</li> <li>26. Firm has a policy to sponsor regional of national educational, cultural event.</li> <li>27. A statement about product safety assurance.</li> <li>28. A statement about quality assurance in regards to service or product.</li> </ol>
	Generic Disclosure	<ol style="list-style-type: none"> <li>29. Any moral statement for considering social issues.</li> <li>30. Any statement about social welfare for public awareness.</li> </ol>

**Table 3 Correlation coefficient matrix and Variance Inflation factor (VIF)**

	CSDI	Board Size	Board Independence	Leverage	Sector	Firm Size	VIF
CSDI	1						2.401989
Board Size	0.6233768	1					2.553555
Board Independence	-0.0366165	-0.0634219	1				1.221097
Leverage	0.3272686	0.2632631	0.0399622	1			1.029049
Sector	0.3500395	0.4194249	-0.0451973	0.6301098	1		2.277089
Firm Size	-0.0886693	-0.1117953	0.0520496	-0.2310624	-0.3927142	1	3.040517

**Table 4 Descriptive Statistic of the variables (N =402)**

	ROA	MCAP	TBQ	SDI	Firm Size	Leverage	Sector	Board Size	Board Independence
Mean	0.0473	22.5836	1.2982	0.1691	21.8905	1.2420	0.3657	2.1889	0.1685
Median	0.0258	22.5436	0.9831	0.1333	21.8430	0.4675	0.0000	2.1972	0.1538
Maximum	0.4010	26.9150	10.5491	0.5333	25.6752	78.5667	1.0000	3.2189	0.8000
Minimum	-0.0965	19.6735	0.0512	0.0000	18.0474	0.0059	0.0000	1.0986	0.0000
Std. Dev.	0.0572	1.1969	1.4273	0.1414	1.5291	4.3120	0.4822	0.3782	0.1130
Observations	402	402	402	402	402	402	402	402	402

Table 5 Regression Analyses regarding the effects of CSD on firm performance.

Independent Variables	Return on Asset						Market Capitalization						Tobin Q					
	Pooled OLS			2SLS			Pooled OLS			2SLS			Pooled OLS			2SLS		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.									
CSDI	0.065	2.640	0.008***	0.086	3.378	0.000***	1.615	4.600	0.000***	0.696	1.842	0.066*	1.575	2.581	0.010	1.621	2.262	0.024***
Firm Size	0.002	1.041	0.298	-0.000	-.343	0.731	0.507	14.332	0.000***	0.660	15.418	0.000***	-0.182	-2.595	0.009	-0.190	-2.029	0.043**
Leverage	-0.000	-1.766	0.078*	-0.000	-1.742	0.082*	-0.018	-5.311	0.000***	-0.016	-4.409	0.000***	-0.005	-1.169	0.243	-0.005	-1.220	0.223
Sector	-0.066	-11.767	0.000***	-0.067	-11.930	0.000***	-0.218	-2.310	0.021***	-0.171	-1.733	0.083*	-1.494	-10.577	0.000	-1.496	-10.742	0.000***
Board Size	0.006	.836	0.403	0.010	1.37	0.170	0.146	1.1952	0.232	-0.039	-0.303	0.761	0.182	0.929	0.353	0.191	0.940	0.347
Board Independence	-0.006	-.290	0.771	-0.004	-.218	0.824	-0.344	-1.010	0.313	-0.414	-1.157	0.247	0.247	0.442	0.658	0.251	0.451	0.651
	R <sup>2</sup> 0.270			R <sup>2</sup> 0.265			R <sup>2</sup> 0.623			R <sup>2</sup> 0.602			R <sup>2</sup> 0.254			R <sup>2</sup> 0.254		
	Adjusted R <sup>2</sup> 0.259			Adjusted R <sup>2</sup> 0.254			Adjusted R <sup>2</sup> 0.617			Adjusted R <sup>2</sup> 0.595			Adjusted R <sup>2</sup> 0.242			Adjusted R <sup>2</sup> 0.242		

\* Indicate statistically significant at the 10% level  
 \*\* Indicate statistically significant at the 5% level  
 \*\*\* Indicate statistically significant at the 1% level

Table 6 Regression Analyses regarding the effects of CSD categories (strategic/long, short, generic) on firm performance

Independent Variables	Return on Asset			Market Capitalization			Tobin Q		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
Long-term	0.065	2.432	0.015***	1.530	3.999	0.000***	1.584	2.561	0.010*
Short-term	0.005	0.368	0.712	-0.181	-0.689	0.490	0.232	0.666	0.505
Generic	0.005	0.665	0.506	0.437	3.029	0.002***	0.045	0.196	0.844
Firm Size	0.002	1.064	0.287	0.501	14.087	0.000***	-0.178	-2.540	0.011
Leverage	-0.000	-1.733	0.083*	-0.020	-4.910	0.000***	-0.004	-0.884	0.377
Sector	-0.066	-11.738	0.000***	-0.240	-2.521	0.012***	-1.470	-10.603	0.000***
Board Size	0.005	0.759	0.447	0.107	0.861	0.389	0.178	0.894	0.371
Board Independence	-0.006	-0.320	0.748	-0.407	-1.218	0.223	0.247	0.440	0.659
	R <sup>2</sup> 0.272			R <sup>2</sup> 0.630			R <sup>2</sup> 0.255		
	Adjusted R <sup>2</sup> 0.257			Adjusted R <sup>2</sup> 0.624			Adjusted R <sup>2</sup> 0.240		

- \* Indicate statistically significant at the 10% level
- \*\* Indicate statistically significant at the 5% level
- \*\*\* Indicate statistically significant at the 1% level

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