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Determinants and Effects of Voluntary Disclosure with a focus on Corporate Governance and Firm Performance: Evidence from Bangladesh

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BBA, MCOM, MPA, PGC

Submitted in Fulfilment of the Requirements for the Degree of Doctor of Philosophy

Discipline of Accounting
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March 2018

Abstract

Increasingly awareness of corporate activity in developing and less developed economies has come under public scrutiny in terms of corporate voluntary disclosure and firm performance. Shareholders and a range of other stakeholders rely on the transparency afforded by corporate public disclosures and the governance mechanisms that ensure accountability. Therefore, studies in voluntary disclosure and firm performance that combine elements of corporate governance and shareholder and stakeholder perspectives provide insights for regulators, especially in developing economies competing in a global market. Accordingly, this study examines the determinants and effects of voluntary disclosures within Bangladesh after a severe share market crash in 2010. Despite being one of the poorest countries, Bangladesh has significant opportunities for companies in the future as an emerging economy experiencing significant economic development. Therefore, regulators are interested in how to improve corporate governance to ensure transparency and promote investment.

To understand voluntary corporate disclosure practices, three significant categories – social, environmental and intellectual capital – are used as a proxy for CSR and transparency. To accommodate a diverse range of stakeholders, the framework developed by An et al. (2011) is adapted for the Bangladeshi context as it combines agency, legitimacy and signalling theories. The investigation is conducted in two stages. First, important indicators of corporate governance are identified from the extant literature to determine the effects on the level of voluntary corporate disclosures. Second, the effect of these disclosures on firm performance is determined. The study is conducted by examining the top 200 listed firms on the Dhaka Stock Exchange for the years 2011 to 2013. To accommodate the lag in firm performance the data set is extended to 2014. This panel data is subjected to statistical analysis including Ordinary Least Square and Two Stage Least Square. Robustness tests are also applied throughout.

The findings determine that the presence of a sub-committee, audit committee composition and foreign ownership have a significant positive relationship with voluntary corporate disclosure; on the other hand, CEO duality and director ownership is significantly negatively associated. In relation to firm performance, voluntary disclosure has a significant positive effect on return on assets, market capitalization, earnings per share and Tobin's Q.

While limited to the top 200 listed firms, the findings provide insights into how corporate governance characteristics moderate and ensure transparency by considering discretionary disclosures related to social, environmental and intellectual capital aspects to facilitate development of future corporate governance guidelines. It further indicates that voluntary disclosure can improve firm performance in Bangladesh. This offers an incentive to the firm to ensure greater transparency through voluntary disclosure.

This study makes a further contribution to the ongoing debate regarding a more integrative approach by utilizing a combined theoretical framework dedicated to a developing country context and a diverse range of stakeholders.

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Last but not least, I apologise to any person who helped me in completing or improving my PhD thesis but has not been acknowledged here.

Certification

I, Mohammed Shahinul Sazzad Bhuyan, declare that this thesis submitted in fulfilment of the requirements for the conferral of the degree Doctor in Philosophy in the School of Accounting, Economics and Finance, from the University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. This document has not been submitted for qualifications at any other academic institution.

____

Mohammed Shahinul Sazzad Bhuyan

30th March, 2018

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List of Abbreviations

2SLS- Two Stage Least Square

ADB- Asian Development Bank

BASs -Bangladesh Accounting Standards

BB- Bangladesh Bank

BEI- Bangladesh Enterprise Institute

BFRSs– Bangladesh Financial Reporting Standards

BSAs- Bangladesh Standards of Auditing

BSEC- Bangladesh Securities and Exchange Commission

CCI- Controller of Capital Issues

CMDP- Capital Market Development Program

CSE- Chittagong Stock Exchange

DPS- Dividends per Share

DSE- Dhaka Stock Exchange

EVA- Economic Value Added

EPS- Earnings per Share

GDP- Gross Domestic Product

IAS- International Accounting Standards

ICAB- Institute of Chartered Accountants of Bangladesh

ICMAB- The Institute of Cost and Management Accountants of Bangladesh

IFI- International Financial Institutions

IFRS- International Financial Reporting Standards

ISA- International Standards on Auditing

MVA- Market Value Added

MCAP- Market Capitalization

NPAT- Net Profit After Tax

OLS- Ordinary Least Square

RJSC- Registrar of Joint Stock Companies and Firms

ROA- Return on Assets

ROE- Return on Equity

ROI- Return on Investment

ROS- Return on Sales

M1. R1= Model One & Robustness Test One

M2. R1= Model Two & Robustness Test One

M1. R2= Model Two & Robustness Test Two

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Related Thesis Publication

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Chapter One: Introduction

1.1 Introduction

There is a growing interest in the voluntary disclosure of a firm's activities in its annual report. Not only has this trend emerged during the last three or so decades amongst companies in developed countries, but it has also become a significant agenda in developing countries. This growing interest in voluntary disclosure may be due to the nature of the type of disclosures. Mandatory disclosures in a firm's annual report generally cover activities of a financial nature; these information requirements are regulated and enforced by company law or the relevant accounting standards adopted by the country in which the firm operates. In contrast, voluntary disclosures provide additional information about a firm's activities, incorporating social, ethical and environmental aspects, as well as potential value creation through intellectual capital; this kind of information is aimed at supplementing mandatory disclosure. This non-financial information is usually disclosed voluntarily (Garcia-Meca & Sánchez-Ballesta 2010) with some exceptions.

Given that one of the primary purposes of a firm is to improve shareholders' value, the voluntary disclosure literature focuses on why a firm should adopt non-mandatory disclosure that may incur additional cost. This study extends the prior literature that explores the potential determinants of voluntary disclosure as well as investigates whether voluntary disclosure is an explanatory factor for firm performance, in particular, by focusing on a developing country context. This context is of interest because developing regions are generally characterized by poor social economic conditions and social inequity. Accordingly, academics, policymakers, government and private organizations, and investors, to name a few, from both developed and developing countries, have become increasingly interested in exploring the determinants and effects of voluntary disclosure in developing countries.

Voluntary disclosure is defined as any information that is additional to mandatory disclosure. While there is a wide range of voluntary disclosure

categories, most voluntary disclosure relates to social, environmental and intellectual capital aspects (Garcia-Meca & Sánchez-Ballesta 2010). Social disclosure is the provision of financial and non-financial information that derives from the economic activity of a firm, and is discharged mainly to communicate with groups concerned with social activities (Aribi & Gao 2010; Gray et al. 1987; Guthrie & Mathews 1985), for example, information regarding staff welfare involvement or donations in social issues, policies on employee harassment and information on product safety (Cui et al. 2018; Hackston and Milne 1996; Haniffa and Cooke 2005; Kamal and Deegan 2013; Khan et al. 2013). Environmental disclosure refers to the information that derives from the interaction of a firm and the natural environment; for instance, any information regarding environmental risks, impacts, policies, strategies, targets, costs, energy savings and liabilities (Deegan & Gordon 1996; Sen et al. 2011; Lokuwaduge & Heenetigala 2017). Intellectual capital is considered as the knowledge of an organization; for example, any form of talent, skills from individuals and groups, including technological and social networks, software, culture, and intellectual property. This resource is considered to be a vital strategic asset with significant value creation potential (Akpinar & Akdemir 1999; Garanina, & Dumay 2017; Mouritsen 1998). Thus, any information from a firm that reflects these values or assets is considered as intellectual capital disclosure. Therefore, from a firm perspective, social, environmental and intellectual capital disclosures cover information about the social and environmental effects of a firm's operations and the values derived from an intangible asset perspective and consequently are of interest to a wide range of stakeholders, not just shareholders.

Among the many themes in the voluntary disclosure literature, one area of consistent attention has been the attempt to identify the determinants of voluntary disclosure by considering corporate governance characteristics as a potential determinant for stock exchange listed companies (Ali et al. 2017; García-Sánchez et al. 2018; Garcia-Meca & Sánchez-Ballesta 2010; Khlif et al. 2016; Khlif & Souissi 2010; Samaha et al. 2015). According to the Cadbury Report (1992), corporate governance is the process of administration and control within an organization that is directed towards ensuring the best interest of shareholders in regard to compliance with regulation. Accordingly, corporate governance of a firm

plays a significant role in the decision making process of a firm. Consistent with this definition, corporate governance characteristics play a significant role in voluntary disclosure as there is no legal enforcement to disclose additional information. It should also be noted that the level of voluntary disclosure varies in annual reports from country to country (Boesso & Kumar 2007) as well as company to company (Abeysekera 2007). Therefore, there is scope to extend the literature by exploring voluntary disclosure from a different research context.

A stream of research is devoted to exploring the effects of voluntary disclosure (Allouche & Laroche 2005; Griffin & Mahon 1997; Margolis & Walsh 2003; Orlitzky et al. 2003; Wang et al. 2016), mostly seeking to understand how firms have traditionally focused on strategies to develop business operations and ultimately enhance profitability or improve financial performance. These effects are documented but are contrasted with the additional managerial emphasis and accompanying costs required to produce this information and pursue such strategic goals. Examination of the aggregate effects of voluntary disclosure therefore becomes a thought-provoking research agenda; and the relationship between voluntary disclosure and firm performance has been much debated in the literature (Griffin & Mahon 1997; Wang et al. 2016). This research can provide greater insight when considering how the effects of voluntary disclosure on firm performance vary from country to country. Similarly, the approach or method of the research used influences the results of previous studies. So while there is an established voluntary disclosure literature, there is still ample scope to investigate the relationship between voluntary disclosure and firm performance by considering different research settings.

Much of the research into voluntary disclosure to date has taken place within developed country contexts (Ahmed & Courtis 1999; Cooke 1989; Hackston & Milne 1996; Hossain et al. 1995; Stanwick & Stanwick 1998). There may be less motivation to examine voluntary disclosure within developing countries due to weak social and economic conditions. Firms in underdeveloped regions have maintained a focus on monetary rather than social agendas and therefore do not emphasize voluntary disclosure, but this may be to the detriment of firm performance in the long term. Prior studies have suggested that voluntary disclosure

not only serves as a potential tool of social legitimacy but can also enhance firm performance (Wang et al. 2016) and the current study seeks to extend this research agenda.

While there is limited research focusing on voluntary disclosure in developing countries, this particular field of research is increasing (Ali et al. 2017; Abeysekera 2008; Ahmed Haji & Mubaraq 2012; Andrew et al. 1989; Sobhani et al. 2009). The bulk of this research has occurred since 2000 (Abdolmohammadi 2005; Abeysekera & Guthrie 2005; Eng & Mak 2003; Haniffa & Cooke 2005; Haniffa & Cooke 2002; Ho & Wong 2001; Jusoh et al. 2017) and there are still many avenues to investigate. In particular, Bangladesh has received limited attention and insights into voluntary disclosure in Bangladesh will contribute to the wider literature on voluntary disclosure.

Bangladesh is a developing country situated in the region of South Asia and became an independent country in 1971. Bangladesh is a unitary and sovereign republic known as the People's Republic of Bangladesh. The area known as Bangladesh was colonized by the British in 1757. British rule led to some practices that continue to prevail in the corporate culture of Bangladesh. Bangladesh was established on the four pillars of nationalism, secularism, democracy and socialism, although Bangladesh was under military rule for 15 years (1976–1991) and democracy was restored in 1991 (Kabeer et al. 2012; White 1992). Within Bangladesh, the Awami League and the Bangladesh Nationalist Party are major political parties. From a religious perspective, the dominant religion is Islam (85% of total population) while other religions like Hinduism, Buddhism and Christianity are also present in Bangladesh. Despite being the third largest Muslim country in the world, sharia law is not the source of public law in Bangladesh and a democratic government is in place (Hasan 2011). Hence, although there are followers or various religions, a considerable degree of religious harmony prevails.

It should be noted that over the last few decades, the economy of Bangladesh has made commendable progress, with consistent growth in GDP.[1]

[1] Chapter Four presents detailed discussion on the Bangladesh economy

Similar to other developing countries, foreign investment plays a vital role in the Bangladesh economy. In particular, pressure from external authorities like international regulators and foreign investors play a key role for corporate accountability and reporting multinational firms (Belal & Owen 2007; Imam & Malik 2007; Islam & Deegan 2008; Muttakin & Khan 2014). Due to a relatively stable economy[2] and substantial progress in poverty reduction,[3] Bangladesh is considered a model for developing countries.[4] However, Bangladesh is subject to criticism due to widespread povery, inefficient government (UK Border Agency 2012; Begum et al. 2012), poor socio-cultural indicators, corruption at varying levels (Azmat & Samaratunge 2009; Islam & Deegan 2008), and weak enforcement of the law. The Bangladeshi government is seeking to resolve these challenges by considering several initiatives from a social perspective[5] as well as a regulatory context.[6]

Therefore, this study will apply two significant streams of investigation into voluntary disclosure in a developing country context by studying the determinants and effects of voluntary disclosures with a focus on corporate governance characteristics and firm performance in Bangladesh. A foundation for this study is developed in the remaining sections of this chapter. It is structured as follows.

Section 1.2 discusses the motivation for this study. Section 1.3 presents the research questions for this study. Section 1.4 elaborates on the contribution made by this study. Section 1.5 presents the framework of this thesis by giving a brief outline of each chapter. Finally, Section 1.6 provides a summary and conclusion of this chapter.

1.2. Motivations for the Study

In the last few decades, financial crises and corporate collapses have been witnessed within developed (e.g., Enron) and developing (e.g., Asian financial

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[2] http://www.worldbank.org/en/news/feature/2017/05/14/bangladesh-development-update-breaking-barriers visited 26/03/2018 6..38 pm
[3] http://www.worldbank.org/en/country/bangladesh/overview visited 26/03/2018 6..37 pm
[4] https://asiafoundation.org/2014/06/25/bangladeshs-development-surprise-a-model-for-developing-countries/ visited 26/03/2018 6..31 pm
[5] http://www.worldbank.org/en/country/bangladesh/overview visited 26/03/2018 10.08 am
[6] http://www.secbd.org/ visited 26/03/2018 9.50 am

crisis) regions of the world. The reasons for these crises are often attributed to poor corporate governance, transparency and disclosure practices (Arnold & De Lange 2004; Gul & Leung 2004; Haniffa & Hudaib 2006; Ntim et al. 2012). Voluntary disclosure is considered as a means of contributing to the transparency of a firm. Given the importance of corporate reform in light of the financial crises and corporate collapses referred to above, corporate governance and voluntary disclosure have attracted much attention from policymakers and academics (Aguilera & Cuervo-Cazurra 2009; Brown et al. 2011; Brown et al. 2006; Samaha et al. 2015).

In response to a recent share market collapse, Bangladesh reformed its corporate governance guidelines and also reformed the Bangladesh Securities and Exchange Commission (BSEC) to boost the confidence of investors.[7] This suggests corporate governance might be a significant explanatory factor to address problems of transparency and establish best practices relating to voluntary disclosure. While engaging in these agendas, the issue of maintaining firm performance is also an imperative that is balanced or harmonized with practices of voluntary disclosure. While the management and production of voluntary disclosure may incur additional costs, a lack of information may warrant negative responses from investors that can hinder a company's ability to thrive. Investigation of these contrasting elements, therefore, is of interest to academics, policymakers, public and private sector organizations, and stakeholders. This study investigates the determinants and effects of voluntary disclosure with a focus on corporate governance characteristics and firm performance within the context of Bangladesh. This area of research has been selected for the following reasons.

First, studies in the prior literature consider particular categories of voluntary disclosure independently and apply empirical analyses to social (Choi et al. 2010; Haji 2013; Haniffa & Cooke 2005; Islam & Deegan 2008; Mishra & Suar 2010; Muttakin & Khan 2014), environmental (Halme & Huse 1997; Montabon et al. 2007; Rao et al. 2012), or intellectual capital disclosures (Abdolmohammadi 2005; Abeysekera 2007; Hidalgo et al. 2011; Li et al. 2008). Others combine one

[7] http://www.secbd.org/Order%20relating%20to%20Corporate%20Governance%20Guidelines-9%20Jan06.9%20Jan06.pdf Visited 2/06/2015 6.20PM
http://www.secbd.org/Revised%20of%20CG%20Guidlines%20BD.pdf Visited 2/06/2015 6.36PM

or two categories only (Hackston & Milne 1996; Hossain et al. 2006; Khlif et al. 2015; Qiu et al. 2016), while some do not differentiate between categories (Chau & Gray 2002; Eng & Mak 2003). Limiting the focus to a particular category inhibits an understanding of the bigger picture. Similarly, it is argued that categorizing voluntary disclosure allows various stakeholders, who may have a stake in the study or firm, to select their own relevant types of information while ignoring others (Meek et al. 1995). This focus is worthwhile in given contexts but may not service a broader range of users and may not provide accurate guidance when it comes to policy development or implementation. There are limited studies that focus on combined social, environmental and intellectual capital disclosures within a single study and, in particular, no such study examines the Bangladeshi context for combined disclosure.

Second, exploration of the determinants of voluntary disclosure is an interesting field as these practices are not enforced vigorously by policymakers and accounting standard-setters. By considering the monitoring and controlling role of corporate governance, a significant number of prior studies stress corporate governance characteristics as a potential determinant of voluntary disclosure. It should also be noted that the results of the relationship between corporate governance characteristics and voluntary disclosure are not yet conclusive (Garcia-Meca & Sánchez-Ballesta 2010; Samaha et al. 2015). Furthermore, research from a corporate governance perspective is subject to limitations due to an endogeneity problem and this issue is not addressed widely (Larcker et al. 2007; Larcker & Rusticus 2007, 2010). In addition, although, there are a large number of prior studies that focus on corporate governance as a determinant of voluntary disclosure, a change in the context of the study (i.e., data selection, country and methodology) provides an opportunity to create a richer base of evidence (Brown et al. 2011).

Third, as mentioned previously, examining the effects of voluntary disclosure on firm performance is considered to be a significant agenda. Within business, firms must always focus on output, profitability and innovation while not breaking their social licence to operate. From a purely economic perspective, the foremost purpose of a firm is to be profitable. The absence or neglect of voluntary disclosure may convey a negative message that the firm is not interested in social

or environmental imperatives. In contrast, managing voluntary disclosure is subject to additional costs and too much disclosure can reveal confidential information about a firm's operations that may influence its ability to thrive in a competitive market. A large number of prior studies has stressed the effects of voluntary disclosure on firm performance and the results are not yet considered to be conclusive (Orlitzky et al. 2003; Qiu et al. 2016; Ribeiro Soriano et al. 2012), due to various factors, including the perceived limitations of statistical analyses to examine the relationship between disclosure and firm performance (Al-Tuwaijri et al. 2004; Garcia-Castro et al. 2010) and the challenges associated with the selection of appropriate indicators of firm performance (Griffin & Mahon 1997; Lu et al. 2014; Orlitzky et al. 2003). Categories of firm performance measurements (i.e., accounting-based, market-based and mixed) are also subject to limitations (Richard et al. 2009) as every indicator has distinct features. Results from one indicator might therefore be conflated with other indicators. Therefore, a further study that addresses these limitations using different contexts may provide significant insight and make a unique contribution to the literature.

Fourth, it may be assumed that within developing country contexts, disclosures in annual reports may be less significant as poverty, corruption, social inequalities and mismanagement, small capital market and weak regulations represent significant obstacles. This perception is reinforced by the observation that developed countries have received much more attention in the literature than developing countries. However, in recent times, an increasing trend towards voluntary disclosure has been observed (Haji 2013; Sobhani et al. 2009). Studies focusing on developing countries have the potential to provide significant contributions for policymakers (Abeysekera & Guthrie 2005; Eng & Mak 2003; Haniffa & Cooke 2002) as Western concepts of accounting are not appropriate for less developed regions (Disu & Gray 1998). Further, most prior studies in developing countries are limited to a few countries, including China (Huafang & Jianguo 2007; Zeng et al. 2012), Malaysia (Haji 2013; Haniffa & Cooke 2005; Haniffa & Cooke 2002) and Singapore (Cheng et al. 2014; Cheng & Courtenay 2006; Eng & Mak 2003).

Finally, among developing countries, voluntary disclosure in the Bangladeshi context is of greater significance than that of other developing countries, in particular, the three categories of voluntary disclosure mentioned earlier – social, environmental and intellectual capital. This is because the Bangladeshi economy has experienced significant growth of nearly 6% per year in the past decade. A recent report from the World Bank[8] and PWC[9] also forecasts that Bangladesh will be one of the emerging economies within a few decades. Accordingly, the Bangladeshi government is keen to improve social conditions at both micro and macro levels.[10] As a result, firms from Bangladesh may consider social disclosure as a means to legitimize firm activities, especially as it attempts to meet the needs of a range of global stakeholders. Bangladesh also has unique environmental characteristics that influence its environmental disclosures as it is subject to many natural disasters (Belal et al. 2010), such as rising sea levels and frequent major cyclones. Furthermore, policymakers in Bangladesh have been active in initiating several activities to encourage and enforce transparency among firms to protect shareholders' interests. For example, in 2006 BSEC introduced a new corporate governance rule enforcing mandatory corporate governance disclosure by the year 2012 to improve overall disclosure and protect shareholders' interests. [11] Therefore, voluntary disclosure carries more significance in Bangladesh. However, despite this there is a dearth of studies that emphasize the effects of voluntary disclosure. In addition, limited studies examine the determinants of voluntary disclosure with a focus on a particular category (social, environmental and intellectual capital disclosure). It should be noted that most of these are limited to data before 2010[12] while very little is known after 2010. Moreover, most studies from Bangladesh cover a small sample limited to one sector. Thus, there is ample opportunity to contribute to the literature in the Bangladeshi context by considering data after 2010 and multiple years and sectors, as well as applying a rigorous statistical approach.

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[8] https://www.worldbank.org/en/news/feature/2016/04/30/bangladesh-development-update-bangladesh-economy-requires-focus-on-sustainable-and-inclusive-growth-moving-forward
[9] http://www.pwc.com/gx/en/issues/the-economy/assets/world-in-2050-february-2015.pdf
[10] http://www.worldbank.org/en/news/feature/2013/04/13/bangladesh-development-update-slower-yet-healthy-growth-with-remarkable-development-progress
11 http://www.secbd.org/Order%20relating%20to%20Corporate%20Governance%20Guidelines-9%20Jan06.pdf Visited 2/06/2015 6.20PM
12 The Bangladesh share market faced a severe share market collapse in 2009–2010.

Based on the above, it is concluded that the examination of voluntary disclosure is important in developing country contexts, compared to developed countries where such practices are well established. What little is known about voluntary disclosure in developing contexts is compounded by the scarcity of studies. Therefore, there is an opportunity to contribute to the literature by addressing those issues and Bangladesh is a prime investigatory context.

1.3 Research Questions

The central research question of this study is: 'What are the determinants and effects of voluntary disclosure of firms in the Bangladeshi context?'

To address this, two sub-questions are addressed in this thesis. See Figure 1-1 for a graphical representation of the basic research framework of this study.

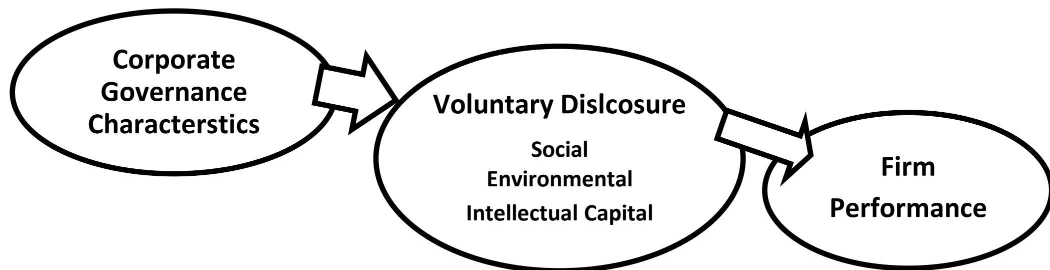

Figure 1-1 Research framework for this study

The two research questions addressed in this thesis are as follows:

1. To what extent do corporate governance characteristics affect voluntary disclosure of social, environmental and intellectual capital disclosures in Bangladesh listed firms?
2. To what extent does voluntary disclosure affect firm performance in Bangladeshi listed firms?

1.4 Contributions of this Study

The current study seeks to understand the determinants and effects of voluntary disclosure by synthesizing the concepts of corporate governance, voluntary disclosure and firm performance located in the literature. It is expected that this study contributes to the literature in several ways.

First, it determines the explanatory factors of voluntary disclosure whilst simultaneously showing the effects of voluntary disclosure on firm performance in Bangladeshi listed companies. Regarding the determinants and effects of voluntary disclosure, most prior studies limit the focus either to determinants (Garcia-Meca & Sánchez-Ballesta 2010; Samaha et al. 2015) or effects (Molina-Azorín et al. 2009; Orlitzky et al. 2003) of voluntary disclosure. In particular, this study integrates three perspectives: (1) corporate governance; (2) voluntary disclosure; and (3) financial performance using quantitative methods. This study offers a more complete picture as it is presumed that during the decision-making process pertaining to voluntary disclosure, firms also assess the potential effect on performance. This warrants attention, particularly as Bangladesh seeks to move toward a more flexible and active economy. Thus, this study extends the literature by considering all three aspects – social, environmental and intellectual capital disclosures. In addition, this study considers data following the share market crash in Bangladesh. The findings of this study may have practical implications for regulatory authorities and policymakers, such as the Bangladesh Securities and Exchange Commission, the Stock Exchanges, the Institute of Cost and Management Accountants of Bangladesh, the Bangladesh Enterprise Institute and the Bangladesh Bank.

Second, the study contributes to the literature by adopting a combined theoretical framework to interpret the empirical findings and to understand the underpinnings of corporate governance, voluntary disclosure and firm performance in depth in a developing country context. In so doing, this study reviews existing theoretical frameworks and finds that a combination of several theories may be effective for guiding voluntary disclosure studies. Although, An et al. (2011) is considered as a pioneering study in considering interrelated concepts by developing a combined theoretical model, this study develops a modified theoretical framework by considering agency, legitimacy and signalling theory in a developing country context. This is the first attempt to adopt a combined theoretical framework for various voluntary disclosures including social, environmental and intellectual capital disclosure to explore the determinants and effects of voluntary disclosure in a developing country context.

Third, this study extends the voluntary disclosure literature by categorizing social and environmental disclosure from three different perspectives: long-term, short-term, and general disclosure. Prior studies have mainly concentrated on an assessment of disclosures by considering operational constructs (Belal et al. 2010; Hackston & Milne 1996; Kamal & Deegan 2013; Khan et al. 2013). Since voluntary disclosure is also considered as a strategic tool for the firm because it has the potential to develop competitive advantage (Mishra & Suar 2010), consideration of a strategic management view for the long or short term (Banks & Wheelwright 1979) is a useful insight (Carroll 1991). Therefore, this study extends the literature by aligning strategic management concepts to the current literature on voluntary disclosure.

Fourth, this study investigates the relationship between corporate governance characteristics and voluntary disclosure; and, by combining social, environmental and intellectual capital disclosures it extends the extant literature. It also extends the understanding of this relationship by considering other characteristics of corporate governance[13] that have not been considered within the Bangladeshi context. In addition, for corporate governance-related studies, endogeneity is considered to be a major pitfall (Larcker et al. 2007; Larcker & Rusticus 2007), however this study's approach eliminates this problem. Furthermore, the period of data used for this study incorporates data from after Bangladesh's share market crash, which is an under-utilized data set.

Finally, this study investigates the effects of voluntary disclosure from Bangladesh – an under-researched context. Three categories of firm performance indicators – accounting, market-based and mixed – are used, in contrast to most other studies that consider only one or two (Brine et al. 2007; Hossain et al. 2015; Lima Crisóstomo et al. 2011).This study proceeds with five indicators of firm performance – Return on Assets (ROA), Return on Sales (ROS), Market Capitalization (MCAP), Earnings per Share (EPS) and Tobin's Q. This selection covers all three categories of performance indicators and reports a consistent result.

[13] This study considers sub-committee and audit committee independence while these have not previously been examined within a Bangladeshi context. In addition, consideration of institutional ownership is also very limited within Bangladesh.

Thus, this study makes an important contribution to the literature based on its methodological approach, conceptual base and statistical techniques employed.

1.5 Organizations of the Thesis

Figure 1-2 illustrates the structure of the thesis. Chapter Two reviews the literature on voluntary disclosure, corporate governance characteristics and financial performance. It reviews voluntary disclosure studies within the context of developed, developing and Bangladeshi contexts before discussing the literature on the relationship between corporate governance characteristics and voluntary disclosure from developed, developing and Bangladeshi perspectives. After reviewing the literature, the significance of the characteristics of corporate governance are isolated and selected for this study. Finally, the literature on the effects of voluntary disclosures on firm performance is reviewed from developed, developing and Bangladeshi contexts. Some significant indicators of firm performance are isolated, deemed important, justified and nominated for this study.

Chapter Three discusses the theoretical underpinnings related to the research questions of this study. Prior studies that involve single and combined theories are reviewed. An et al.'s (2011) theoretical framework, which combines agency, legitimacy, stakeholder and signalling theories, is considered the most appropriate model. This theoretical framework is modified by deleting stakeholder theory to fit the context of this study.

Chapter Four describes the background of Bangladesh from historical, economic, legal and regulatory perspectives. In addition, corporate voluntary disclosure, capital market and corporate governance settings in Bangladesh are described in the chapter. Then, relevant hypotheses are developed to examine the determinants and effects of voluntary disclosure.

Chapter Five elaborates on the data and methodology for this study. The data set considers top 200 listed firms on the Dhaka Stock Exchange. Based on data availability the final sample includes 134 annual reports of listed companies between the years 2011 and 2014. Voluntary disclosure and corporate governance characteristics data are based on the years 2011 to 2013 while firm performance covers the years 2012 to 2014. A detailed description of the measurement process

of the entire independent, dependent and control variables follows. Two research models are developed. The first model emphasizes the determinants of voluntary disclosure while the other focuses on the effects of voluntary disclosure.[14] These models are addressed sequentially in Chapter Five. In addition, various statistical tests, including assumptions of normality, multicollinearity, heteroscedasticity, endogeneity and descriptive tests are outlined and applied before proceeding with the analysis. Pooled ordinary least squares and two stage least squares regressions are then discussed and applied. The chapter concludes with a discussion of robustness tests to ensure the rigour of the findings.

Chapter Six presents the results of the analysis of the relationship between corporate governance characteristics and voluntary disclosure. Initially, it presents the results of descriptive statistics, normality, multicollinearity, heteroscedasticity and endogeneity tests for the research model. It finds that CEO Duality and Director Ownership are negatively associated with voluntary disclosure while Foreign Ownership, Sub-committee, and Audit Committee Composition are positively associated. However, no significant relationship is found for Board Size, Board Composition or Institutional Ownership.

Chapter Seven demonstrates the results of the effects of voluntary disclosure on firm performance. Consistent with the previous chapter, the results of descriptive statistics, assumptions of normality, multicollinearity, heteroscedasticity and endogeneity tests for the research model are scrutinized. It is found that voluntary disclosures of a firm have a positive effect on financial performance by considering ROA, MCAP, EPS and Tobin's Q as relevant indicators. However, no significant effects are found regarding ROS.

Chapter Eight provides a summary of the main results and discussions on the findings of the research in relation to the research questions. The section presents a discussion of the findings of this chapter and draws a comparison with the prior literature. It highlights the contribution of this study in the context of Bangladesh and the overall contribution to the literature. Finally, the conclusion

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[14] Research model 1: Relationship between corporate governance characteristics and voluntary disclosure by considering corporate governance characteristics as an independent variable.
Research model 2: The effects of voluntary disclosure on firm performance by considering voluntary disclosures as an independent variable.

and recommendations from the empirical analysis, along with the limitations of the study, are outlined. Directions for future research are also extrapolated based on these findings.

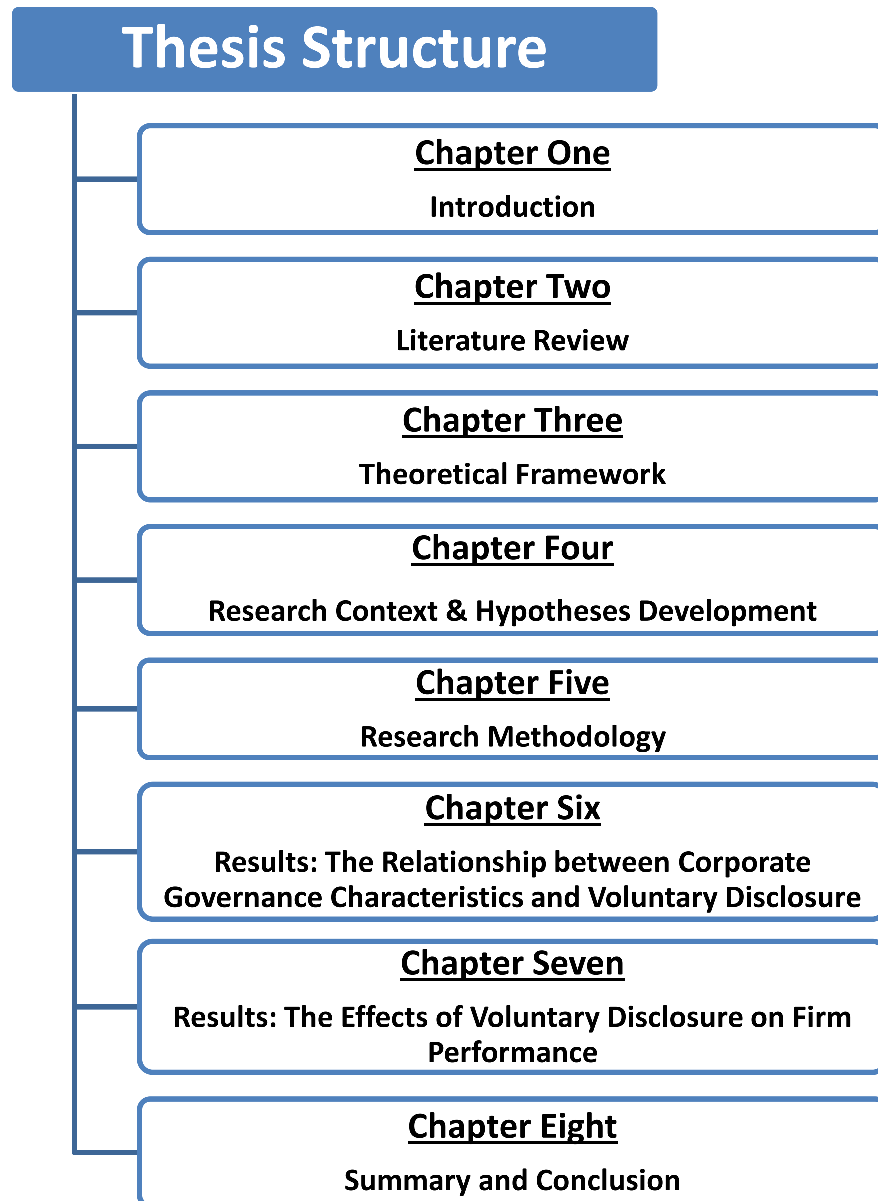

Figure 1-2 Thesis structure

1.6 Summary and Conclusion

This chapter presented an introduction to the topic of investigation focusing on the determinants and effects of voluntary disclosure and their relationship with corporate governance characteristics and financial performance in the context of Bangladesh. The motivations, research questions and contributions of the study were discussed. Finally, an overview of the remaining chapters was also presented.

There are several factors that motivate this study. *First,* there is a dearth of studies that combine significant categories of voluntary disclosures (social, environmental and intellectual capital) compared to studies that examine these categories independently. A study that combines these three categories will contribute to a more thorough understanding of corporate voluntary disclosure.

Second, literature regarding the relationship between voluntary disclosures is contradictory at present. A further study that utilizes a more in-depth data set, addresses methodological limitations and considers an important context where there is currently a scarcity of research will extend the current literature.

Third, research into the effects of voluntary disclosures on firm performance has also yielded contradictory results. As above, a study that considers a wide range of firm performance indicators, addresses methodological limitations and considers an under-researched context will extend the current literature.

Fourth, voluntary disclosure studies have mostly focused on developed countries. However, an increasing focus on voluntary disclosure in developing countries is also required. It has been noted that, given the poor socio-economic context existing in certain developing nations, firms tend to ignore voluntary disclosure-related agendas but there may be an opportunity to put the concept into practice and leverage this opportunity to benefit both organizations and the society in which they operate.

Finally, among various developing countries, Bangladesh carries extra significance for social, environmental and intellectual capital disclosures due to recent economic developments and share market crashes. There are limited studies in this area and most prior studies apply limited samples and methodological rigour. A data set retrieved after the share market crash that covers a wide range of sectors will contribute valuable findings and extend the literature.

Chapter Two: Literature Review

2.1 Introduction

The aim of this study is to investigate the determinants and effects of voluntary disclosure with a focus on corporate governance characteristics and firm performance in a developing country context. Disclosures of a firm are mainly categorized as mandatory and voluntary. In the context of mandatory disclosure, a firm must comply with the rules and regulations imposed by a range of authorities, including accounting standard-setters. In contrast, voluntary disclosures are at the discretion of firms as there is minimal regulation to guide voluntary disclosures. There is a lack of specific national guidelines for voluntary disclosure, therefore, firms' annual reports should be considered from multiple perspectives to ascertain what voluntary disclosures are made and how and why firms make these disclosures.

From the firm's perspective, voluntary disclosure complements mandatory disclosure (Graham et al. 2005). Voluntary disclosure is considered as an effective way to communicate with stakeholders and also an opportunity to create a good impression by disclosing positive social, environmental and intellectual capital information. In so doing, every firm needs to consider the potential impacts of any negative impression created by the absence of disclosures, which could be interpreted as hiding or ignoring information. However, too much disclosure can reveal information about a firm's operations that may influence its ability to thrive in a competitive advantage or bargaining power in various contexts (Admati and Pfleiderer 2000). Given these conditions, it can become difficult to determine a firm's intentions about voluntary disclosures.

Before conducting any investigation, it is essential to carry out a review of the relevant literature to extend the understanding of the relevant research agenda. Bruce (2001, p. 1) states that:

> Completing a literature review is usually a significant intellectual achievement in its own right, requiring the analysis and synthesis of previous work in such a manner that new understandings of that work are uncovered and the way is opened for new scholarship or research.

As has been stated in Chapter One, this study will primarily investigate two research questions. The first question addresses the determinants of voluntary disclosure by considering corporate governance characteristics as a potential influential factor. The second question prompts an examination of the effects of voluntary disclosure on firm performance. Accordingly, the literature review is conducted in three stages. *First,* prior studies pertaining to voluntary disclosure are reviewed. Prior voluntary disclosure studies will be further categorized into developed, developing and Bangladeshi contexts. *Second,* literature on the relationship between corporate governance characteristics and voluntary disclosure is reviewed and divided into meta-analysis studies, studies from developed/developing countries and studies in the Bangladeshi context. *Finally,* the effects of voluntary disclosure on firm performance are reviewed by categorizing into meta-analysis studies, studies from developed/ developing countries and studies in the Bangladeshi context.

The chapter is organized in the following manner. Section 2.2 reviews the literature on voluntary disclosure studies. Section 2.3 reviews prior studies regarding the relationship between corporate governance characteristics (determinant) and voluntary disclosure across three areas as described above and summarizes the corporate governance characteristics chosen for this thesis. This is followed by Section 2.4, which reviews studies regarding the effects of voluntary disclosure on firm performance and summarizes the firm performance indicators considered for this thesis. Finally, the chapter summary and conclusion is presented in Section 2.5.

2.2 Voluntary Disclosure Studies

Wallace and Naser (1995) assert that unregulated disclosures of financial and non-financial information to stakeholders are to be considered voluntary. In addition, voluntary disclosure is also considered an effective means of communication with various stakeholders. Therefore, providing extra information to these stakeholders that is not required by regulation is also considered to be voluntary disclosure.

Investigations of voluntary disclosure in the context of accounting research are not new, with the first such study of developed countries undertaken by Cerf (1961). However, within developing countries, attention was not given to voluntary disclosure until the mid-1980s (Andrew et al. 1989; Teoh & Thong 1984). Since then, a dramatic upsurge in voluntary disclosure studies has been witnessed in developed as well as developing countries. It is claimed that a lack of adequate disclosures was one of the significant reasons for the Asian financial crisis (Gul & Leung 2004) and corporate collapses, such as Enron (Arnold & De Lange 2004). Therefore, an increasing trend of investigating voluntary disclosures is observed.

In the following, studies on voluntary disclosure are reviewed in three sub-sections: studies within developed countries in Sub-section 2.2.1, other developing countries in Sub-section 2.2.2 and within the Bangladeshi context in Sub-section 2.2.3.

2.2.1 Voluntary Disclosure Studies within Developed Countries

A significant number of prior studies has been conducted to examine voluntary disclosure within various developed country contexts. Developed countries have played a leading role in this type of research with a wide consideration of social, environmental and intellectual capital considered as significant voluntary disclosure.

In relation to disclosure practices, Gray et al. (1995) report a substantial change in the pattern of social and environmental disclosures for UK firms during the period 1979 to 1991. Campbell (2000) provides further evidence of the growing trend of social disclosures after analysing data contained within the annual reports of the UK firm Marks and Spencer for the period 1969 to 1997. This study concludes that a substantial increase in social disclosures had occurred. Hartman et al. (2007) compare 16 multinational firms in the United States (US) and the European Union (EU) in regards to social reporting by focusing on language, citizenship, corporate accountability, and moral commitments like ethical context. They reported that, within US firms, the focus of voluntary disclosure was limited to economic terms. On the other hand, firms from the EU placed an emphasis on both economic and sustainability issues.

For environmental disclosure practices, Deegan and Gordon (1996) contribute to a more detailed understanding of voluntary disclosure by considering firms in Australia. This study reveals three significant issues. *First,* firms are inclined to promote positive aspects of their environmental performance while negative disclosures are ignored. *Second,* an increasing trend of environmental disclosures has been reported from 1980 to 1991. *Finally,* the extent of environmental disclosure is positively associated with environmental lobby groups' concerns regarding the environmental performance of firms within particular industries. Studying Spanish firms, Larrinaga et al. (2002) assert that environmental disclosure is very low. By comparing political motives with disclosures in financial reporting, they also observe regulation may not motivate the development of environmental responsibility. This has theoretical implications for this thesis, which is based on the assumption that firms have a tendency to overlook formal accountabilities that do not contribute to a firm's social legitimacy. Campbell (2004) considers environmental disclosures based on ten UK firms across five sectors between the years 1974 and 2000, finding further evidence for the increasing trend of voluntary environmental disclosures following rapid growth in the late 1980s and continuing into the 1990s.

For intellectual capital practices, Guthrie and Petty (2000) assert that from an Australian perspective the main components were not well understood and managed in an efficient manner, as well as not reported within a consistent framework. This study also reports that the main focus for disclosures is allocated to human capital-related issues while other matters are given less attention. In contrast, Sujan and Abeysekera (2007) report an increase in intellectual capital disclosures in Australia. Their conclusions are based on comparison of data from 2004 with the data used by Guthrie and Petty (2000). Abeysekera (2007) conducts a comparison between intellectual capital disclosures from a developing country (Sri Lanka) and a developed country (Australia) using data from the period 1998–1999 to 1999–2000. It should be noted that, regarding Australian disclosure data, this study relies on the data set from Guthrie and Petty (2000). The results of the Abeysekera (2007) study suggest that the internal capital disclosure level is higher in Australia compared to Sri Lanka, except for human capital in which the opposite

is the case. It is argued that differences in economic, social, and political factors might cause such differences in disclosure levels.

From the above discussion it can be extrapolated that voluntary disclosure (social, environmental and intellectual capital) research within developed countries has received significant and ongoing attention (Al-Shaer et al. 2017; Appuhami & Tashakor 2017; Pisano et al. 2017).

2.2.2 Voluntary Disclosure Studies within Developing Countries

At the earlier stage of voluntary disclosure research, developing country contexts were less explored (Teoh & Thong 1984). However, the limited results from these studies have contributed to a richer understanding of the research topic. It should also be noted that most of the prior studies from developing countries are limited to Malaysia, China and Singapore.

In relation to social disclosure practice, Andrew et al. (1989) examine 119 listed firms in Malaysia and Singapore in 1983 and reveal that the focus of social disclosures is limited to larger firms only. In contrast, considering data from more recent years, Tsang (1998) suggests that a growing trend of social disclosure has been observed from the years 1986 to 1995 within the banking, hotel, and food and beverages sectors of Singaporean firms. Similarly, Haji (2013) reports an increase in the extent and quality of social disclosure after examining 85 Malaysian firms between the years 2006 to 2009. Based on a sample of firms from China, Noronha et al. (2013) report that the practice of social disclosure is still in its infancy and lags behind Western countries.

Regarding environmental disclosures, Nik Ahmad and Sulaiman (2004) report that there is very limited environmental disclosure for Malaysian firms. Considering a later longitudinal study, Alrazi et al. (2009) assert that there is an increasing trend of environmental disclosures in Malaysia.

Within the context of intellectual capital disclosures, a significant number of studies from various countries also report an increasing trend. Ahmed Haji and Mubaraq (2012) assert that intellectual capital disclosures for Nigerian firms in the banking sector have increased over time. This study reveals that, in terms of intellectual capital, a major proportion of voluntary disclosure is dominated by

human and internal capital. In the Malaysian context, Haji and Ghazali (2013) indicate that external capital-related information dominates firms' voluntary disclosure practices. Abeysekera and Guthrie (2005) also conclude that there is an increasing trend for intellectual capital disclosures for Sri Lankan firms. This study considers 30 top listed firms from 1998–1999 to 1999–2000.

Overall, consistent with developed countries, an increasing trend towards voluntary disclosure is observed, and the level of voluntary disclosure is increasing. Bangladesh represents one such developing nation with a patchy history of voluntary disclosure, and this is explored in the following section.

2.2.3 Voluntary Disclosure Studies within Bangladesh

Voluntary disclosure within the context of Bangladesh began in the late 1990s (Belal 1997; Belal 1999; Ahmed 1996). Ahmed's (1996) research plays a pioneering role in disclosure research within Bangladesh by examining the extent of disclosure and the relationship with firm characterstics. After comparing the dislcosure level for 1987–1988 and 1992–1993 for 118 non-financial public listed firms, Ahmed reports that there is a very low level of voluntary disclosure. In addition, it was found that the extent of disclosure had improved when comparing the years. Furthermore, multinational firms and firms audited by large auit firms dislcose more when compared to other firms. However, no significant relationship was found for company size and total amount of debt. Since then, various studies have contributed to the literature regarding voluntary disclosure with major attention being placed on social disclosure.

In the last century, very limited social disclosure for Bangladeshi firms occurred and was mainly based on employees and related to ethics (Belal 1999). Imam (2000) investigates 40 firms for the years 1996–1997, finding that social disclosure was limited and insufficient for discharging social responsibilities. He further adds that only firms with superior performance express a clear intention to disclose social issues. Belal (2001) examines social disclosures and supports the previous findings, showing that limited social disclosure takes place in practice. Similarly, Kamal and Deegan (2013) report disclosures by firms in the garment industry falling well short of international expectations. Similarly, Khan et al. (2009) investigate the banking sector in Bangladesh and find only perfunctory

social disclosure by firms. Azim et al. (2009) also support these findings by demonstrating that the banking sector discloses more social issues compared to other industries. Similarly, Al Mamun and Kamardin (2014) report that there is an increasing trend for corporate voluntary disclosures within the banking sector in Bangladesh.

In the context of environmental disclosures in Bangladesh, Belal (2000) reports limited disclosure in his examination of 30 firms in 1996. Similarly, Bala and Yusuf (2003) suggest that very few firms disclose environmental information in Bangladesh. In addition, they reveal a lack of regulation is the key reason for the scarcity of environmental disclosure, although the specific reasons are not discussed. Consistent with these findings Bose's (2006) study of Petrobangla (a firm from the fossil fuel sector in Bangladesh) also reports a limited focus on environmental initiatives. Similarly, Belal et al. (2010) reveal limited environmental and climate change disclosures in their investigation of the 100 largest firms for the year 2008. Therefore, overall there is a lower level of environmental disclosure within firms in Bangladesh, although Sobhani et al. (2009) argue that the situation had been improving.

In regards to intellectual capital disclosures in Bangladesh, there seems to be limited disclosure. However, a few studies have attempted to investigate this phenomenon. Ali et al. (2008) examine 22 listed non-financial firms and report that minimal qualitative disclosures are evident. Similarly, Khan and Khan (2010) report an insufficient level of human capital disclosures after examining 32 manufacturing firms in Bangladesh. In addition, they find within human capital, employee related information, such as numbers of employees, training, recruitment policies and career related information, like career development, receives more attention than other categories. In addtion, it is also observed that the extent of reporting has also increased due to intervention from regulators. Abhayawansa and Azim (2014) find that intellectual capital reporting is not consistent among the 16 pharmaceutical firms in their sample in Bangladesh. Therefore, Bangladeshi firms lag in regards to managing intellectual capital, although Rashid (2013) concludes from a study of 136 non-financial firms there appears to be an increasing trend of intellectual capital disclosures.

The above discussion indicates that voluntary disclosures, including social, environmental and intellectual capital disclosures, are not well documented or researched in the Bangladeshi context as most of the studies are limited to a small sample size and do not consider all industry sectors. Prior studies have indicated a limited but increasing trend of voluntary disclosures, suggesting they are becoming more significant.

2.3 Corporate Governance Characteristics (Determinants) and Voluntary Disclosure Studies

Voluntary disclosure is not enforceable and therefore relies solely on the willingness of management and is influenced by the desire, motive and perception of persons within the organization who are involved with control, monitoring and decision making (Garcia-Meca & Sánchez-Ballesta 2010; Samaha et al. 2015). These factors are moderated by the corporate governance characteristics of the firm (Dalton et al. 1998; Dalton et al. 1999; Fama & Jensen 1983). Accordingly, it could also be argued that corporate governance characteristics play a significant role in decisions pertaining to voluntary disclosure. Consistent with this argument, a substantial number of studies documents that corporate governance characteristics act as an explanatory factor for voluntary disclosure (Garcia-Meca & Sánchez-Ballesta 2010; Khlif et al. 2016; Khlif & Souissi 2010; Samaha et al. 2015).

The Cadbury Report (1992) defines corporate governance as the system by which companies are directed and controlled. Shleifer and Vishny (1997) extend this definition and state that corporate governance is an institutional arrangement by the finance providers of the firm (shareholders) to secure a proper return on investment. There is no single comprehensive definition of corporate governance, but these definitions, as with other definitions, emphasize that a firm is directed and controlled by corporate governance. Brown et al. (2011, p. 98) elaborate the concept of corporate governance:

> Corporate governance is about the governance of corporations, which may not be a particularly revealing statement from a definitional point of view but it does remind us that [corporate governance] is to do with corporations and it is also to do with determining the activities in which they are properly engaged.

Therefore, corporate governance can be succinctly defined as the process of administration, monitoring and control within a firm to assist in the ongoing goal of efficiency and accountability. Furthermore, the above definition suggests that corporate governance characteristics can reinforce monitoring and controlling activities and lead to a reduction in information asymmetry (Fama & Jensen 1983). In addition, Ho and Wong (2001) argue that if a firm has an intensive monitoring environment it is difficult for managers to withhold information or disclose false information. Further, it could also be argued that the characteristics of corporate governance can affect accountability of a firm (Cong & Freedman 2011) due to its monitoring and control mechanisms. Therefore, management or boards may discharge (ignore) accountability by providing (avoiding) additional information such as voluntary disclosure.

Consistent with the above arguments, a large number of prior studies has documented that corporate governance characteristics act as an explanatory mechanism for voluntary disclosures of a firm and the trend continues (Garcia-Meca & Sánchez-Ballesta 2010; Khlif et al. 2016; Khlif & Souissi 2010; Samaha et al. 2015). However, the results of prior studies are contradictory; it has been argued that changing the context of research (i.e., data selection, country, time and methodology) may present findings from a different perspective (Brown et al. 2011). The following section reviews prior studies regarding the relationship between corporate governance characteristics and voluntary disclosure in detail according to prior meta-analysis studies, studies within other countries (develop/developing) and Bangladesh respectively.

2.3.1 Relationship between Corporate Governance Characteristics and Voluntary Disclosure Meta–analysis

For an in-depth understanding of the literature that considers the relationship between corporate governance characteristics and voluntary disclosure, several studies combine the findings of existing studies to draw a conclusion about the relationship. The key findings of those studies are summarized in Table 2.1.

Table 2-1 Summary of Meta-analysis of the relationship between corporate governance characteristics (determinant) and voluntary disclosure

Year	Authors	Reviewed Papers	Considered direction		Results and additional comments
			Dependent: Disclosure	Independent: Corporate Governance Characteristics	
2010	Garcia-Meca & Sánchez-Ballesta	27	Voluntary Disclosure	Board Independence (+)	A positive relationship between board independence and voluntary disclosure occurs if there are high investor protection rights within the research context. There is a very limited study to explore the effects of CEO duality, audit committee, insider ownership and institutional ownership to voluntary disclosure.
2010	Khlif & Souissi	16	Corporate Disclosure	Audit Firm Size (+)	This study fails to find any significant relationship between ownership dispersion and voluntary disclosure. Differences in culture and the organizational environment may have an impact on the observed dissimilar relationships.
2015	Samaha et al.	64	Voluntary Disclosure	Board Size (+) Board Composition (+) Audit Committee (+) CEO Duality (-)	Geographic location acts as a moderating factor for the relationship between board size, board composition, CEO duality and voluntary disclosure. The relationship of voluntary disclosure with CEO duality and board composition might be moderated by disclosure type, and differences in definitions of explanatory variables.
2016	Khlif et al.	69	Voluntary Disclosure	State Ownership (+) Foreign Ownership (+) Institutional Ownership Managerial Ownership (-) Ownership Concentration (-)	Owners of firms might vary with wealth constraints, competence, preferences and non-ownership ties to the firm. Such difference might also affect the firm disclosure. The relationship between ownership structure and voluntary disclosure is moderated by country- and firm-level governance mechanisms.
2017	Ali et al.	76	Corporate Social Responsibility (CSR) Disclosure	Corporate Governance Mechanism has an influence on Corporate Social Responsibility Disclosure.	The determinants of CSR disclosure vary from developed to developing countries. In developed countries, the main determinants are specific stakeholders including regulators, shareholders, creditors, investors, environmentalists and the media. In developing countries, the main determinants are external forces/powerful stakeholders such as international buyers, foreign investors, international media and international regulatory bodies (e.g., the World Bank) Public pressure is greater within developed countries compared to developing countries.

The significant characteristics of corporate governance considered by the studies in Table 2.1 include: board composition (independence), audit firm size, board size, board composition, audit committee, CEO duality, state ownership, foreign ownership, institutional ownership, managerial ownership, director ownership and ownership concentration. It should also be noted that the influence of corporate governance characteristics on voluntary disclosure has no unique research context (i.e., country, time) and contextual factors such as these may moderate the relationship (Ali et al. 2017; Brown et al. 2011). Accordingly, mixed findings (positive, negative, no relationship) between corporate governance characteristics and voluntary disclosures have been documented in the literature (Garcia-Meca & Sánchez-Ballesta 2010; Khlif et al. 2016; Samaha et al. 2015). Therefore, to gain a thorough understanding regarding the relationship between the characteristics of corporate governance and voluntary disclosure, the following section reviews studies from developed and other developing countries separately.

2.3.2 Relationship between Corporate Governance Characteristics and Voluntary Disclosure: Developed and Other Developing Countries Contexts

Ali et al. (2017) report that the determinants of voluntary disclosure vary particularly from developed to developing countries. Therefore, to find the key characteristics of corporate governance that act as a determinant of voluntary disclosure, a review of various studies is conducted below. Key findings of the reviewed studies are summarized in Appendix A.

Within the existing literature, the characteristics of corporate governance can be categorized as internal and external mechanisms. In particular, board and audit committees are considered as internal mechanisms while ownership concentration is an external mechanism of corporate governance. Both have been considered as important factors for voluntary disclosure as they are the key mechanism for controlling, monitoring and decision-making processes (Garcia-Meca & Sánchez-Ballesta 2010; Khlif et al. 2016; Khlif & Souissi 2010; Samaha et al. 2015). It should be noted that sevral characteristics of corporate governance, including CEO duality (Allegrini & Greco 2013; Hidalgo et al. 2011), board size (Abeysekera 2010; Akhtaruddin et al. 2009; Hidalgo et al. 2011), board composition (Akhtaruddin et al. 2009; Esa & Anum Mohd Ghazali 2012; Rao et al.

2012), audit committee independence (Haji 2015), presence of a sub-committee (Cerbioni & Parbonetti 2007), foreign ownership (Haniffa & Cooke 2005; Huafang & Jianguo 2007), director ownership (Ghazali & Weetman 2006; Mohd Ghazali 2007) and institutional ownership (Barako et al. 2006a; Ntim et al. 2012), are widely considered. These factors are also found to be significant explanatory factors for voluntary disclosure within various research contexts of both developed and developing countries.

The relationship between corporate governance characteristics and voluntary disclosure within the Bangladeshi context is reviewed in the following section.

2.3.3 Relationship between Corporate Governance Characteristics (Determinant) and Voluntary Disclosure: Bangladesh Context

Studies of the relationship between corporate governance characteristics and voluntary disclosure in Bangaldesh are primarily limited to social disclosures. Rashid and Lodh (2008) play a pioneering role by examing this relationship within small firms. They report that director ownership is negatively associated, and board compositon positively associated, with social disclosure but fail to find any relationship between ownership concentration and institutional ownership. By considering the banking sectors, Khan et al. (2013) extend this understanding by considering 116 listed firms from Bangladesh to explore the determinants of social disclosure. They report that public ownership, foreign ownership, board composition from independent directors and presence of an audit committee are positively associated with social disclosure but negatively with managerial ownership. Compared to social disclosure, the relationship between corporate governance characteristics and other forms of voluntary disclosure, such as environmental disclosure and intellectual capital disclosure, has not been widely explored (see Hossain et al. (2006) and Muttakin et al. (2015) as exceptions). Hossain et al. (2006) is the only study that emphasizes environmental as well as social disclosure and fails to find any significant relationship with the presence of an international link to an audit firm. More recently, Muttakin et al. (2015) explore intellectual disclosure and find that foreign ownership, the proportion of independent directors and existence of an audit committee all have positive

influences on intellectual capital disclosure. It should be noted that most of the studies from Bangladesh consider a single year to explore relationships (Khan 2010; Rashid & Lodh 2008; Rouf 2011; Rouf & Al Harun 2011) with notable exceptions using multiple years (Khan et al. 2013; Muttakin et al. 2015; Muttakin et al. 2016). The key findings of prior studies from the Bangladeshi context are summarized in Appendix B.

Within the limited studies in Bangladesh, some characteristics of corporate governance, including CEO duality (Rouf & Al Harun 2011), board size (Muttakin et al. 2016), board composition (Khan et al. 2013), foreign ownership (Khan et al. 2013), director ownership (Rashid & Lodh 2008) and institutional ownership (Rashid & Lodh 2008), are found to be significant. It should be noted that most of these studies focus on only a particular category of voluntary disclosure or are subject to limitations including, for example, small sample size, data from the period of the share market collapse and limited statistical analyses. In addition, other important variables, such as the presence of a sub-committee and audit committee composition are yet to be explored from a Bangladeshi context.

The following section discusses the characteristics of corporate governance that are considered to be significant factors for the decision-making, monitoring and controlling processes of a firm. In particular the potential explanatory factors for voluntary disclosure in Bangladesh are identified.

2.3.4 Corporate Governance Characteristics Considered for this Study

In the preceding sections, several prior studies on the relationship between the characteristics of corporate governance and voluntary disclosure from various research contexts were reviewed. It was found that both internal (CEO duality, board composition, audit committee independence, sub-committee) and external (foreign ownership, director ownership, and institutional ownership) mechanisms of corporate governance act as significant explanatory factors for voluntary disclosure.

Within the set of corporate governance characteristics, the features of the board are considered to be essential elements for the decision-making process of a firm. These features allow firms to resolve principal–agent conflicts and stimulate

firm monitoring (Dalton et al. 1998; Dalton et al. 1999). Consistent with this argument, several features of the board play an important role (Abeysekera 2010). Board independence in regards to leadership or composition is a significant factor in resolving conflicts of interest between agent and principal to improve a firm's monitoring capability (Fama & Jensen 1983). In addition, the number of persons on the board, or 'board size', allows a firm to gather together various skills that contribute to a cumulative knowledge of the business environment, thus augmenting a firm's capabilities in a competitive marketplace. Furthermore, it is argued that the monitoring role of the board is facilitated by the existence or independence of sub-committees and this may also act as an explanatory factor for voluntary disclosure (Samaha et al. 2015). For instance, the audit committee is considered as a monitoring and controlling mechanism that governs firm disclosure and ensures compliance (Ho & Wong 2001; Khan et al. 2013; Li et al. 2012; Othman et al. 2014). Besides the presence of an independent audit committee, the existence of other sub-committees has also been found to be influential for voluntary disclosure (Allegrini & Greco 2013; Cerbioni & Parbonetti 2007; Karamanou & Vafeas 2005; O'Sullivan et al. 2008). Internal features, such as the presence and independence of the various committees, are therefore observed to be vitally important for the discharge of formal and informal accountabilities that are espoused by voluntary disclosure.

Ownership of a firm is an external feature of corporate governance and is closely associated with agent–principal conflict (Jensen & Meckling 1976) as well as the monitoring and control system of a firm (La Porta et al. 2000). Regarding ownership, Eng and Mak (2003), p. 326) argue that "(t)he structure of ownership determines the level of monitoring and thereby the level of disclosure". Further, it should be noted that the preference, interest, sense of moral obligation and access to firm information is not unique and the preference for disclosure might vary with the nature of the owners. For instance, foreign investors are considered to be more powerful in shaping the views of a firm and might also demand compliance with foreign norms, thereby influencing firm disclosure policies (Imam & Malik 2007; Muttakin & Khan 2014). In addition, directors are able to access extra information compared to outsiders as directors play a vital role in firm management. They also play a role in the selection of appropriate disclosure policies for their respective

firms (Eng & Mak 2003; Jensen & Meckling 1976). As a result, director ownership is another important feature. Institutional investors are considered to be expert investors who are capable of monitoring firms and stimulating firm disclosure (Barako et al. 2006a) and play a significant role in firm transparency.

Therefore, in light of the above discussions, CEO duality, board size, board compositions, presence of a sub-committee and audit committee independence are identified as the key characteristics of the internal mechanisms of corporate governance that influence the monitoring, controlling and decision-making processes. External mechanisms of corporate governance include foreign ownership, director ownership and institutional ownership. The relationship between corporate governance and voluntary disclosure is contradictory, and studies in Bangladesh are subject to several limitations, such as data from a single year, the inclusion of a period of market collapse, or limited statistical analyses. Therefore, a study within Bangladesh will provide valuable insights.

2.4 Voluntary Disclosure and Firm Performance (Effects) Studies

Within voluntary disclosure studies, a relationship between voluntary disclosure and firm performance has been observed. However, the results of such studies are still contradictory (Allouche & Laroche 2005; Das & Bhunia 2016; Lu et al. 2014; Margolis et al. 2009; Margolis & Walsh 2003; Mathews 1997; Molina-Azorín et al. 2009; Orlitzky et al. 2003; Qiu et al. 2016; Wang et al. 2016), requiring further investigation. Voluntary disclosure is an effective medium of communication. It helps to reduce information asymmetry and also acts as a signalling mechanism for stakeholders (Anam et al. 2011; Qiu et al. 2016; Ribeiro Soriano et al. 2012). Accordingly, it could be argued that voluntary disclosure may also influence firm performance.

A significant number of prior studies has explored the effects of corporate voluntary disclosure on firm performance in both developed and developing countries. However, limited attention has been given to Bangladesh and the existing literature is still contradictory (Lu et al. 2014; Mathews 1997; Orlitzky et al. 2003). The following review of the literature examines the effects of corporate governance

and firm performance. In so doing, meta-analysis studies are considered in Sub-section 2.4.1. Studies in developed and developing countries are then reviewed, followed by studies in the Bangladeshi context. Inferences for this study are then made in Sub-section 2.4.4 .

2.4.1 Effects of Voluntary Disclosure on Firm Performance: Meta-analysis

To understand the relationship between corporate governance characteristics and voluntary disclosures in more depth, several meta-analyses have taken place. In particular, the effects of voluntary disclosure on firm performance have been identified by aggregating several studies. The key findings and additional comments are summarized in Table 2.2

Table 2-2 Summary of Meta–analysis: Relationship between voluntary disclosure and firm performance

Year	Authors	Reviewed Papers	Considered directions		Results and Additional comments
			Dependent: Firm Performance	Independent: Disclosure	
1997	Griffin & Mahon	51	Firm Performance	Corporate Social Performance	There is a mixed finding among prior studies. Considering multiple firm performance indicators are advised. Industry is also important for such relationships while it is recommended to consider several years for investigation.
2003	Orlitzky et al.	US studies	Firm Performance	Corporate Social Performance	Corporate Social Performance appears to be more highly correlated with accounting-based measures of CFP than with market-based indicators
2003	Margolis & Walsh	109	Firm Performance	Corporate Social Performance	Positive, negative, non-significant and mixed findings have been reported by 54, 7, 28,20 prior studies respectively.
2005	Allouche & Laroche	Total 82 (64 firm performance dependent)	Firm Performance	Corporate Social Performance	It is advisable to include firm size as control variable. Regarding social performance all the categories do not affect financial performance. It is advisable to use Structural Equation model, Two or Three Stage Least Square regression model for an effective result.
2009	Margolis et al.	251	Firm Performance	Corporate Social Performance	Overall there is a positive effect from corporate social performance to firm performance.
2009	Molina-Azorín et al.	32	Financial Performance	Green Management	Mixed results, mostly environmental management has a positive influence on firm performance. There are various statistical methods used while regression analyses are mostly considered. Various firm performance indicators have used with an extensive consideration of ROA and Tobin's Q.
2014	Lu et al.	84 studies between 2002-2011	Firm Performance	Corporate Social Performance	Although there is a positive association between corporate social performance and firm performance, the relationship between social disclosure and firm performance is insignificant.
2016	Wang et al.	42 studies between 2003-2012	Firm Performance	Corporate Social responsibility (+)	Overall there is a positive effect from social responsibility to firm performance. Following year firm performance is associated with prior year social responsibility. However, no evidence is supported for the reverse direction. The relationship between social reporting and firm performance is more visible in developed countries compared to developing countries.

As seen in Table 2.2, the meta-analysis studies report that voluntary disclosure positively influences firm performance. In addition, to explore the relationship several firm performance indicators are used. Therefore, the selection of firm performance indicators can moderate the result. In addition, it is also documented that the effects of voluntary disclosure on firm performance might not be consistent between developed and developing countries. To gain a more in-depth understanding of the effects of voluntary disclosure on firm performance the following review includes studies from both developed and developing countries.

2.4.2 Effects of Voluntary Disclosure on Firm Performance: Developed and Developing Country Contexts

A major contribution in the literature comes from studies in developed countries and these key findings are summarized in Appendix C.

Within the prior studies, three types of findings are documented. *First,* a positive effect is identified from voluntary disclosure to firm performance (Abdolmohammadi 2005; Chen & Wang 2011; Choi et al. 2010; Khlif et al. 2015). This is consistent with the argument that by considering voluntary disclosure a firm may receive a positive impression from various stakeholders that may influence firm performance. *Second,* a negative effect of voluntary disclosure on firm performance (Li et al. 2016; Lima Crisóstomo et al. 2011; Mathuva & Kiweu 2016) is identified, consistent with the argument that voluntary disclosure is subject to additional costs and the information may not be accepted positively by stakeholders. *Third,* no significant effect of voluntary disclosure on firm performance (Aras et al. 2010; Brine et al. 2007) is found. It should also be noted that, although the effects of voluntary disclosure on firm performance are explored by considering internet-based disclosures, key performance indicator disclosures and research and development disclosures (Basah & Khairi 2015; Elzahar et al. 2015; Garay et al. 2013; Kim et al. 2013; Uyar & Kılıç 2012), a large number of studies are limited to social, environmental and intellectual capital disclosures. In addition, firm performance measurement also varies as a wide range of indicators has been considered. Detailed results of the effects of social, environmental and intellectual capital disclosure on several firm performance indicators are discussed below.

From a social disclosure perspective, the effect on firm performance is also mixed, with studies finding positive effects (Choi et al. 2010; De Klerk et al. 2015; Murray et al. 2006; Prado-Lorenzo et al. 2008; Reverte 2016; Verbeeten et al. 2016; Veronica & Bachtiar 2010), negative effects (Malarvizhi & Matta 2016) and no significant relationship (Aras et al. 2010; Brine et al. 2007). In addition, firm performance indicators such as ROA, return on equity (ROE), ROS, sales growth, share price, Tobin's Q, and EPS are widely considered for prior studies.

Consistent with social disclosures, a mixed result has been reported regarding the effects of environmental disclosure on firm performance. For instance, positive (Chen et al. 2016; Khlif et al. 2015; Nor et al. 2016; Qiu et al. 2016) as well as negative (Li et al. 2016; Mathuva & Kiweu 2016) effects from environmental disclosure have been found in the literature. In addition, consistent with the studies from social disclosure, ROA, ROE, ROS, return on investment (ROI), sales growth, share price, Tobin's Q and EPS are widely considered as firm performance indicators for prior studies.

Compared to social and environmental disclosures, the effects of intellectual capital disclosure are examined in a limited manner and mostly positive effects have been found (Abdolmohammadi 2005; Anam et al. 2011; Ribeiro Soriano et al. 2012). In addition, as a firm performance indicator, MCAP, ROA and market to book value ratio are considered.

The following section compares the limited evidence from the Bangladeshi context to that from developed and other developing countries.

2.4.3 Effects of Voluntary Disclosure on Firm Performance: Bangladesh Context

It has already been mentioned that there is a paucity of studies that explore the effects of voluntary disclosure on firm performance within the Bangladeshi context. Nonetheless, some useful insights have been established (see Appendix D for a summary). Recently, Hossain et al. (2015) have reported that corporate social disclosure has a positive impact on firm performance for Bangladeshi firms. They consider 131 listed firms in Bangladesh by excluding Treasury Bonds and Mutual Funds for the period 2008 to 2012. Consistent with prior studies from other countries, ROA, ROE and Tobin's Q are considered indicators of firm performance.

In light of legitimacy theory, their study suggests that corporate social disclosure influences firm performance positively (ROA and ROE) but fails to find effects using Tobin's Q.

In addition, there are other studies that investigate the effects of social reporting on firm performance by considering other measures of disclosure. Islam and Rahman (2016) report that corporate social reporting has a significant effect on firm performance for the Dutch Bangla Bank in the years 2010 to 2014. For the social reporting variable, expenditure on corporate social reporting was considered while as an indicator of firm performance several variables, including Dividends Per Share (DPS), Net Profit After Tax (NPAT), Economic Value Added (EVA), Market Value Added (MVA), EPS, ROA, ROE and ROI, are considered. The results show that CSR expenditure has a positive effect on firm performance. In addition, Ahmed et al. (2012) examine the effect of social reporting on firm performance after considering five banks in their sample. The study uses a survey to assess social reporting. However, they are not able to find a significant effect on ROA, EPS or price earnings ratio. Further, Ahmed and Habib (2015) and Ahmed (2016) also investigate the effects of social reporting by considering 25 and 30 banks in Bangladesh but are unable to find a significant effect. It is worthwhile noting that most of the prior studies in Bangladesh are limited to social disclosures. Therefore, within the Bangladeshi context, the effects of environmental and intellectual capital disclosure are not known. In addition, these studies are limited to small sample sizes and include the period when the Bangladesh share market was facing a severe market collapse. In addition, less sophisticated statistical methods were used. Therefore, to explore the effects of voluntary disclosure with a larger sample, different period and several statistical methods will contribute to a more robust understanding.

2.4.4 Considered Firm Performance Indicators for this Study

The preceding sections reviewed several prior studies on the effects of voluntary disclosure on firm performance from various research contexts, finding a large number of firm performance indicators have been applied. In particular, ROA, ROE, ROS, ROI, sales growth, share price, MCAP, EPS and Tobin's Q were used extensively. Therefore, consistent with prior studies, this study selects five widely

used indicators of firm performance. The accounting-based indicators selected for use are ROA and ROS. Market-based indicators are MCAP and EPS. Tobin's Q has been selected as a mixed indicator. These indicators are further discussed in the research methodology (Chapter Five).

2.5 Summary and Conclusion

This chapter reviewed the relevant literature on voluntary disclosure, the relationship between corporate governance characteristics and voluntary disclosure, and the effects of voluntary disclosure on firm performance.

A literature review was conducted and separated into three sections. *First,* voluntary disclosure studies were reviewed within developed, developing and Bangladeshi contexts. An increasing trend towards voluntary disclosure was observed within all the contexts. *Second,* studies regarding the relationship between corporate governance characteristics and voluntary disclosure were reviewed by considering several meta-analyses in developed, developing and Bangladeshi contexts. Factors including CEO duality, board size, board compositions, sub-committee, audit committee independence, foreign ownership, director ownership and institutional ownership were considered to examine their respective relationships with voluntary disclosure. *Finally,* studies regarding the effects of voluntary disclosure were reviewed by considering several meta-analyses in developed, developing and Bangladeshi contexts. After reviewing the prior studies ROA, ROS, MCAP, Earnings per Share and Tobin's Q were selected to investigate the effects of voluntary disclosure on firm performance for the purposes of this study.

After conducting a detailed literature review, a theoretical framework is required to guide the study. Thus, in the following chapter the development of a theoretical framework for this thesis will be discussed.

Chapter Three: Theoretical Framework

3.1 Introduction

Collis and Hussey (2013) argue that, for any study, it is essential to make the theoretical stance(s) explicit because it underpins the methodology and research perspective. Theoretical positions relating to corporate governance underpin and provide insight into what disclosures are made and why firms disclose corporate social, environmental and intellectual capital information in annual reports (or elsewhere). Prior research indicates that the reasons for voluntary disclosure are considered to be multifaceted (Collett & Hrasky 2005). For example, a firm may decide to voluntarily disclose information to create a 'good' impression, however, too much disclosure can reveal confidential operational information. In addition, managing extra information is subject to increased cost. In contrast, an absence of disclosures could be interpreted as hiding or ignoring information. This implies that the selection of any particular theoretical framework is significant.

Although there is a growing interest in corporate governance and voluntary disclosures, there is no uniform theoretical framework providing a full explanation for the determinants and effects of voluntary disclosure of a firm. However, there are several theoretical stances that have been adopted in prior studies examining the relationship between voluntary disclosure and corporate governance characteristics (Abeysekera 2010; An et al. 2011; Haji 2015; Watson et al. 2002) and the effects of voluntary disclosure on firm performance (Anam et al. 2011; Hossain et al. 2015; Platonova et al. 2016) using differing contexts. Theories that are commonly used[15] include the following: agency theory (Barako et al. 2006a; Chau & Gray 2002; Haniffa & Cooke 2002); legitimacy theory (Khan et al. 2013; Khan 2010; Momin & Parker 2013); stakeholder theory (Azim et al. 2009; Islam & Deegan 2008; Reverte 2009); signalling theory (Watson et al. 2002; Whiting & Miller 2008; Xiao et al. 2004); political economy theory (Abeysekera & Guthrie 2005; Buhr 1998; Guthrie & Parker 1990); resource dependency (Abeysekera 2010; Haniffa & Cooke

[15] While there are a multitude of theoretical approaches, only the most commonly used in accounting studies of voluntary disclosure that are relevant to this thesis are discussed.

2005); and institutional theory (Baldini et al. 2016). Several theories mentioned here, including agency, legitimacy, stakeholder and signalling, have been widely considered in the literature (Alves 2012; An et al. 2011; Chan et al. 2014; Haji 2013; Watson et al. 2002).

It has been argued that a firm's disclosures are complex phenomena and cannot be explained by a single theory (Cormier et al. 2005; Tagesson et al. 2009). Tagesson et al. (2009) further argue that, to adequately investigate voluntary disclosure, several theories may need to be employed simultaneously. Accordingly, voluntary disclosure studies that use multiple theories have typically combined agency, legitimacy, stakeholder and signalling theories (An et al. 2011; Haji 2013; Watson et al. 2002). However, the assumptions of any single theory may weaken or contradict the idea of other theories. Therefore, it is necessary to consider interrelated theoretical concepts when a combined theoretical framework is proposed. A weakness of prior studies is that the interrelationships between theories are rarely discussed. For example, Haji (2013) explores corporate social disclosure using three theories, agency, legitimacy and signalling theory, but does not discuss the interrelations. Similarly, Xiao et al. (2004) investigate voluntary disclosure by considering agency and signalling theories in combination but fail to show the theoretical interactions.

In contrast, An et al. (2011) develop a combined theoretical framework for the voluntary disclosure of intellectual capital information involving four theories, including agency, stakeholder, legitimacy and signalling theories, and incorporate discussion of the interrelationship. While the study used only intellectual capital disclosures, they argue that their framework "can be extended to explain other voluntary disclosure practices of information" (p. 81). However, the An et al. (2011) theoretical framework is not without limitations. Therefore, an extension of their theoretical framework may provide the opportunity to apply combinations of theories to voluntary disclosure studies in multiple contexts to offer a more comprehensive explanatory rationale.

The remainder of this chapter is organized as follows. Theoretical frameworks that have been adopted in prior research into voluntary disclosures will be reviewed in Section 3.2 including both single and combined theories. This is

followed by a review of the combined theoretical framework developed by An et al. (2011). Section 3.3 begins with a discussion of the omission of stakeholder theory in a developing country context, followed by agency, legitimacy and signalling theories, including how they are integrated and why the theoretical framework is used. A chapter summary and conclusion is presented in Section 3.4.

3.2 Theoretical Frameworks Used in Voluntary Disclosure Studies

Voluntary disclosure in annual reports is influenced by several factors (Ahmed & Courtis 1999; Garcia-Meca & Sánchez-Ballesta 2010; Khlif et al. 2016; Samaha et al. 2015). Similarly, the effects of voluntary disclosures are diverse (Orlitzky et al. 2003; Qiu et al. 2016). Several theories have been adopted by prior voluntary disclosure studies. The following section presents a brief review of the different theories frequently used in voluntary disclosure studies.

3.2.1 Single Theory Studies

Within voluntary disclosure studies a number of theories have been considered, including agency theory (Barako et al. 2006a; Chau & Gray 2002; Haniffa & Cooke 2002), legitimacy theory (Khan et al. 2013; Khan 2010; Momin & Parker 2013), stakeholder theory (Azim et al. 2009; Islam & Deegan 2008; Reverte 2009), signalling theory (Watson et al. 2002; Whiting & Miller 2008; Xiao et al. 2004), resource dependency theory (Abeysekera 2010; Haniffa & Cooke 2005) and political economy theory (Abeysekera & Guthrie 2005; Buhr 1998; Guthrie & Parker 1990). Each of these theories offers a single lens from which to explore the complexities of voluntary disclosure. Therefore, each approach will inevitably have limitations.

Agency theory focuses on the agent and principal conflict between ownership and control of a firm. From a general perspective, the agent is nominated to maximize the interest of the shareholders through control of the firm (Jensen & Meckling 1976). According to agency theory, in order to reduce the conflict between the agent and principal, an agent may use voluntary disclosures to inform

the principal. This is particularly relevant since agents have better access to information and the firm decision-making process (Hossain et al. 1995)

Legitimacy theory is based on the view that a social contract exists between the firm and society. According to legitimacy theory, firms continually seek to ensure that their operational activities are considered within the constraints and norms of their relevant public. From this theoretical perspective, voluntary disclosure can be used to show a firm's compliance with societal norms (Deegan et al. 1996; Deegan & Gordon 1996; Guthrie et al. 2006).

Stakeholder theory focuses on how firms operate and deal with their stakeholders. Firms are able to use natural and other resources, including human resources, to produce goods, services and sustainable waste, on the condition that these are in stakeholders' interests (García-Sánchez et al. 2013; Mathews 1993). In other words, stakeholder theory focuses on the relationship between an organization and various stakeholders in society. Organizations may use voluntary disclosure to address stakeholders' concerns.

Institutional theory focuses on the relationship between the environment and firm and the incorporation of institutionalized norms and rules to achieve stability. Dillard et al. (2004) explain that institutional theory focuses on a firm's interactions with the political and economic institutional environment. In addition, institutional theory also emphasizes the impact of external pressures on a firm and how these influence the alignment of organizational practices.

Signalling theory suggests that a firm may reduce information asymmetry by providing additional information as a signal to receive positive feedback from interested parties (shareholders and policymakers) (An et al. 2011; Morris 1987; Whiting & Miller 2008). As a result, a firm may try to consider voluntary disclosure as a medium of effective communication to create a good image of the firm among stakeholders.

Resource dependency theory focuses on how the external resources of a firm may affect the behaviour of an organization. To understand organizational behaviour, it is essential to know the ecology of the organization (Pfeffer & Salancik 1978). Accordingly, resource dependency theory places an emphasis on the strategic actions of a firm, including maintaining the resource requirements

within the firm and interdependence with other firms (Mustakallio 2002; Muttakin et al. 2016). Therefore, resource dependency theory posits that firm actions are related to available resources.

Political economy theory emphasizes the socio-economic and political contexts that influence firm's disclosure. Guthrie and Parker (1990, p. 166) state that,

> (t)he political economy perspective perceives accounting reports as social, political and economic documents. They serve as a tool for constructing, sustaining and legitimizing economic and political arrangements, institutions, and ideological themes which contribute to the corporation's private interests. Disclosures have the capacity to transmit social, political and economic meanings for a pluralistic set of report recipients.

In addition, Hopwood and Miller (1994) note that political economy theory "emphasizes the fundamental interrelationship between political and economic forces in society" (p. 16). This approach posits that firm disclosure can satisfy individual stakeholders and explain the firm's economic and political arrangements (van der Laan 2009).

Of the theories discussed, the concept of agency theory is used most frequently for voluntary disclosure studies within the context of both developed countries (Campbell et al. 2001; Cooke 1989, 1992; Hossain et al. 1995; Li et al. 2008; Lim et al. 2007; Meek et al. 1995) and developing or emerging countries (Barako et al. 2006a, 2006b; Eng & Mak 2003; Ho & Wong 2001; Huafang & Jianguo 2007). This suggests that the agent and principal conflict perspective plays a vital role in voluntary disclosure. In addition to agency theory, legitimacy theory is widely used within the context of developing or emerging countries (Haniffa & Cooke 2005; Khan et al. 2013; Khan 2010; Nurhayati et al. 2016). The concept of legitimacy theory is also important for voluntary disclosure because it demonstrates firms' intent to reflect, rhetorically or otherwise, that their operational activities are aligned with the norms of society. However, this approach may vary by country, according to national, historical and cultural contexts (Deegan 2002); (Islam & Deegan 2008; Lindblom 1994). In a developing country, societal norms may include the expectations of the global community, including international buyers, investors, media and regulatory bodies (Ali et al. 2017; Imam & Malik 2007;

Muttakin & Khan 2014), and, therefore, the concept of legitimacy is perhaps more applicable to a developing country context.

Signalling theory is applied in studies of both developed and developing countries (Lan et al. 2013; Leventis & Weetman 2004; Watson et al. 2002). Although it is not used widely, it is considered useful for exploring the effects of voluntary disclosure. In particular, disclosures from a firm may act as a signal; accordingly a firm may consider voluntary disclosures as conveying a message to the market or stakeholders for implementing a firm's goals.

3.2.2 Combination Theory Studies

Various studies of voluntary disclosures have considered a combination of several theories to better explain the phenomena (Alves et al. 2012; An et al. 2011; Chen & Roberts 2010; Haji 2013; Leventis & Weetman 2004; Reverte 2009; Watson et al. 2002; Whiting & Miller 2008). The use of a combined theoretical framework is justified because voluntary disclosure is a multifaceted and complex issue. Thus, the use of a single theory is not always sufficient to fully explain complex situations (Chen & Roberts 2010) and allow comprehensive investigation (An et al. 2011; Leventis & Weetman 2004; Tagesson et al. 2009). Therefore, a combination of theories may provide more detailed and comprehensive explanation.

However, no single theory is free from limitations. Hence, combining several individual theories without considering their interrelatedness may introduce conflicts and contradictions. Table 3.1 reviews combined theoretical frameworks that have been considered in prior studies of voluntary disclosure.

Table 3-1 Summary of combined theoretical frameworks

Study	Research Objective	Interrelated Concept between Theories	AGT**	LGT**	SHT**	ST**	RDT**	PET**	IT**	Others**
(Anam et al. 2011)	Examining the effects on market capitalization of intellectual capital disclosure in the annual reports of companies listed on Bursa Malaysia	Not considered				Y	Y			
(Haji & Ghazali 2013)	Examining the relationship between corporate attributes and intellectual capital disclosure based on Malaysian firms.	Not considered	Y				Y			
(Alves et al. 2012)	Examining the determinants of voluntary disclosure based on Portuguese and Spanish firms.	Not considered	Y	Y		Y				
(An et al. 2011)	Develop a comprehensive theoretical framework for interpreting voluntary intellectual capital disclosure	Yes, Considered	Y	Y	Y	Y				
(Anam Ousama et al. 2012)	Examining the determinants of intellectual capital disclosure in the annual reports of Malaysian listed companies.	Not considered	Y	Y		Y				
(Baldini et al. 2016)	Examining the determinants of environmental, social, and governance disclosure based on 42 countries data.	Not considered		Y					Y	
(Branco & Rodrigues 2008)	Examining the influencing factor for corporate social responsibility for Portuguese firms.	Not considered		Y			Y			

** AGT= Agency Theory, LGT=Legitimacy Theory, SHT= Stakeholder Theory,
ST= Signalling Theory, RDT= Resource Dependency Theory, PET= Political Economy Theory,
IT= Institutional Theory, CT= Competition Theory, IMT= Information Theory and Y=YES

Table 3-1 Summary of combined theoretical frameworks (Continued)

Study	Research Objective	Interrelated Concept between Theories	AGT**	LGT**	SHT**	ST**	RDT**	PET**	IT**	Others**
(Chan et al. 2014)	Examining the relationship between corporate governance quality and CSR disclosure based on Australian Firms.	Not considered		Y	Y					
(Chen & Roberts 2010)	To analyze the overlapping perspective of legitimacy, institutional, resource dependency, and stakeholder theory.	Not considered		Y	Y		Y		Y	
(Farook et al. 2011)	Developing and testing a theoretical model of the determinants of Islamic banks' social disclosures based on 14 countries.	Not considered	Y	Y	Y			Y		
(Haji 2013)	Examining the trend and determinants of CSR disclosure based on Malaysian firms.	Not considered	Y	Y		Y				
(Ho & Wong 2001)	Examining the relationship between corporate governance and voluntary disclosure based on Hong Kong firms.	Not considered	Y							IMT
(Li et al. 2008)	Examining the relationship between corporate governance and intellectual capital disclosure based on UK firms	Not considered	Y				Y			
(Leventis & Weetman 2004)	Examining the relationship between firm characteristics and voluntary disclosure based on the Athens stock exchange	Not considered	Y			Y				

** AGT= Agency Theory, LGT=Legitimacy Theory, SHT= Stakeholder Theory,
ST= Signalling Theory, RDT= Resource Dependency Theory, PET= Political Economy Theory,
IT= Institutional Theory, CT= Competition Theory, IMT= Information Theory Y=YES

Table 3-1 Summary of combined theoretical frameworks (Continued)

Study	Research Objective	Interrelated Concept between Theories	AGT**	LGT**	SHT**	ST**	RDT**	PET**	IT**	Others**
(Muttakin et al. 2016)	Examining the effect of directors' human and social capital on CSR disclosure based on Bangladeshi firms.	Not considered	Y				Y			
(Reverte 2009)	Examining the relationship between firm characteristics and CSR disclosure based on Spanish firms.	Not considered	Y	Y	Y					
(Ribeiro Soriano et al. 2012)	Examining the effect of human capital disclosure on firm performance based on firms from Taiwan.	Not considered			Y	Y				
(Haniffa & Cooke 2002)	Examining whether corporate governance, culture and firm characteristics acts as a determinant of voluntary disclosure based on Malaysian firms.	Not considered	Y				Y			
(Verbeeten et al.) 2016	To investigate whether corporate social responsibility (CSR) disclosures are associated with firm value	Not considered		Y	Y					ECT
(Watson et al. 2002)	Examining the relationship between firm characteristics and voluntary disclosure based on UK firms	Not considered	Y	Y		Y				

** AGT= Agency Theory, LGT=Legitimacy Theory, SHT= Stakeholder Theory,
ST= Signalling Theory, RDT= Resource Dependency Theory, PET= Political Economy Theory,
IT= Institutional Theory, CT= Competition Theory, ECT= Economic Theory and Y=YES

As noted in Table 3.1 agency, legitimacy, stakeholder and signalling theories are predominantly considered in combined theoretical frameworks and single theory studies of voluntary disclosure. It is noteworthy that, among the use of combined theoretical frameworks, only a few studies have considered interrelated concepts. In particular, An et al. (2011) develop a combined theoretical framework for voluntary disclosure by demonstrating the relationship between agency, legitimacy, stakeholder and signalling theory with an emphasis on intellectual capital disclosure. This thesis provides further empirical support by adopting this framework and extending it to include social and environmental disclosures.

3.2.3 An et al. (2011) Theoretical Framework

The theoretical framework proposed by An et al. (2011) demonstrates how agency, stakeholder, legitimacy and signalling theories interact within the context of voluntary intellectual capital disclosure. They relate these theories to voluntary disclosure because they are considered to reduce information asymmetry, discharge accountability and signal legitimacy to stakeholders. The relationship is summarized in Figure 3-1.

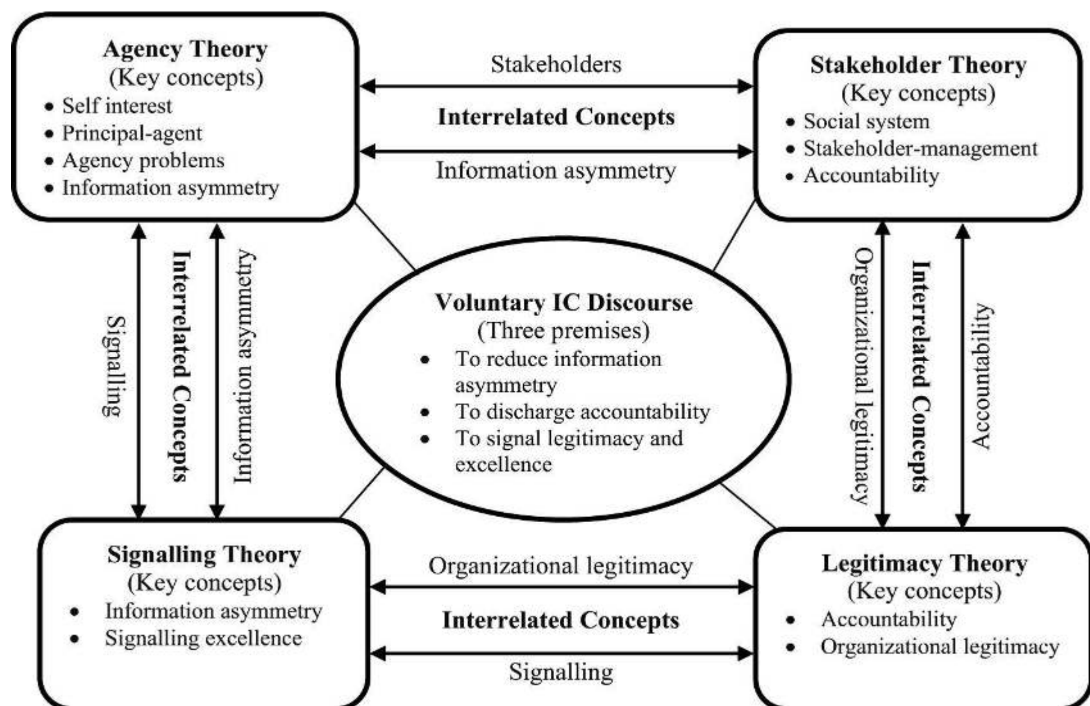

Figure 3-1 Interrelated concepts of the considered theories, Source: An et al. (2011), p. 580

The relationship between agency theory and stakeholder theory is explained by An et al. (2011, p. 578).

> Stakeholder theory expands agency theory which primarily focuses on the manager-shareholder relationship. This can be seen as an advancement of stakeholder theory. However stakeholder theory does not utilize the concept of information asymmetry. Therefore in explaining the voluntary disclosure practices of IC, both theories need to be integrated.

Therefore, from a voluntary disclosure perspective (intellectual capital disclosure), an integration of agency and stakeholder theory may explain information asymmetry and the principal–agent relationship as well as the relationship with other stakeholders.

An et al. (2011) argue that the concept of legitimacy and stakeholders is closely tied because legitimacy theory focuses on the firm and society while stakeholder theory focuses on firm accountability towards various stakeholders. Therefore, a connection between stakeholder and legitimacy may extend our understanding of voluntary disclosure (intellectual capital disclosure).

Furthermore, An et al. (2011) argue that a firm intends to legitimize operational activities by the disclosure of information voluntarily, therefore signalling theory acts as an explanatory tool. Accordingly, the concept of legitimacy and signalling theory complement each other in the context of voluntary disclosure (intellectual capital disclosure).

Moreover, An et al. (2011, p. 579), also argue that "(s)ignalling theory deals with how to address problems arising from information asymmetry (e.g., adverse selection and moral hazard) and, thus, it is closely linked to agency theory" Therefore, a firm may consider voluntary disclosure as a more effective means of communication both in signalling that information is available and in reducing information asymmetry.

The relationship mentioned above, and the interactions among the theoretical concepts, provide a strong base for empirical studies of voluntary disclosure. However, while this integrated theoretical framework is able to provide a more comprehensive understanding, it is also subject to limitations. The limitations and potential ways of overcoming these are discussed below.

First, the theoretical framework does not explicitly consider the research context (i.e., a developed or developing country). The research context is important, as a change in the environment may influence the relevance of the study (Brown et al. 2011) because socio-economic conditions and culture impact on the issue to be researched. Islam (2010) has noted that earlier studies from a developing country context do not provide a notable contribution from a theoretical perspective. Thus, there is a need for a theoretical framework with an explicit emphasis on a developing country context.

Second, the An et al. (2011) framework focuses on a particular category of voluntary disclosure: intellectual capital. However, as An et al. (2011, p. 581) assert:

> ... the framework can be extended to explain other voluntary disclosure practices of information. Corporate social reporting (CSR) is a good example for this application because the three drivers for voluntary IC disclosure are also applicable to CSR. Although there have been many theoretical traditions interpreting CSR, the current framework could be a beneficial supplement.

This thesis applies the An et al. (2011) theoretical framework to include a broader range of voluntary disclosures by incorporating social and environmental disclosure in addition to intellectual capital.

Finally, An et al. (2011, p. 581) highlight that "… the framework is not justified by any empirical evidence so that we do not know whether it does work or not in the real practice".

Therefore, this thesis extends the An et al. (2011) theoretical framework to address these limitations. It should also be noted that prior studies have considered agency, legitimacy and signalling theory in a combined theoretical framework (Alves et al. 2012; Anam Ousama et al. 2012; Farook et al. 2011; Haji 2013; Reverte 2009). This provides an alternative method for understanding and exploring the determinants and effects of voluntary disclosures. The following section presents the process of constructing the theoretical framework for this study.

3.3 Theoretical Framework

The preceding section presents the An et al. (2011) theoretical framework as a combination of agency, stakeholder, legitimacy and signalling theories. However, stakeholder theory may not be suitable for voluntary disclosure studies within a developing country because individual stakeholders might not be considered of equal importance and the focus of disclosure limited to a few groups of important stakeholders (Islam & Deegan 2008) where firms are keen to consider voluntary disclosure as an element of legitimacy. By complying with the social contract a firm can attract investors, customers, employees and others (Deegan 2006). Accordingly, from a developing country perspective, legitimacy theory is more applicable because firms are keen to legitimize their activities rather than focus on individual stakeholders and stakeholder groups. In prior studies into voluntary disclosure, Gray et al. (1995) has stated that stakeholder and legitimacy theories overlap but legitimacy theory is preferred over stakeholder theory (Chen & Roberts 2010; Deegan et al. 2002; Deegan et al. 2000; Gray et al. 1996). Therefore, this study develops a combined theoretical framework by including agency, legitimacy and signalling theory and excludes stakeholder theory as not relevant for this study.

Adopting the theoretical framework developed by An et al. (2011), this study constructs a combined theoretical framework that includes agency, legitimacy and signalling theory. The following section discusses the concepts and application of the individual theories in the context of voluntary disclosure.

3.3.1 Concepts and Application of Considered Theories in Voluntary Disclosure Studies

Agency, legitimacy and signalling theories have similar philosophical underpinnings and overlapping concepts. However, they vary according to some underlying assumptions. For example, agency theory is based on the premise of maximizing the benefit to shareholders while resolving agent–principal conflicts. In contrast, legitimacy theory focuses on macro-level issues in society to legitimize a firms' activities among various stakeholders (Reverte 2009; Woodward et al. 1996) instead of limiting the focus to shareholders only. Signalling theory articulates the concept that firms send a signal to stakeholders about firm activity

and reduce information asymmetry among stakeholders. Therefore, although agency, legitimacy and signalling theory have some similarities, they are not identical. The following section discusses the definitions and key concepts and their application pertaining to voluntary disclosure including the relationship between corporate governance and firm performance.

3.3.1.1 Agency Theory

To reiterate, agency theory deals with the conflicting relationship between the agent and the principal and it also suggests that the agent should act in the best interests of shareholders. However, this is challenging since the activities of the agent have consequences for several stakeholders and may not be aligned with the goal of shareholders (Shapiro 2005).

Agency theory was originally developed by Jensen and Meckling (1976, p. 308) who defined this relationship as "… a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent". Within the context of the firm, the agent acts on behalf of the principal (shareholder) and the welfare of the principal is affected by the decisions of the agent (Jensen & Meckling 1976). From the perspective of agency theory, the agents (managers) have better access to firm information and may consider providing extra information as voluntary disclosure to reduce information asymmetry between the principals (shareholders) and their agents (managers) (Hossain et al. 1995). Agency theory focuses on the conflict between agent and principal and the potential issues that may arise when shareholders appoint an agent to manage the firm. The firm's decision-making process and regime of corporate governance is therefore a core consideration in understanding this conflict (Dalton et al. 1999). This point is reinforced by the Cadbury Report (1992), which outlines that corporate governance is about directing, managing and controlling the systems of a firm. In line with the concept of agency theory, the corporate governance of a firm is a vital factor in influencing the firm's decisions relating to voluntary disclosure to reduce information asymmetry.

Within the literature, agency theory is a widely used theory to focus on the instruments of corporate governance and identify the determinants of voluntary

disclosure (Akhtaruddin et al. 2009; Allegrini & Greco 2013; Barako et al. 2006b; Cheng & Courtenay 2006; Donnelly & Mulcahy 2008; Eng & Mak 2003; Muttakin et al. 2015). The concept of principal–agent conflict in agency theory allows researchers to develop several inferences regarding these determinants.

First, as Healy and Palepu (2001) and Botosan and Plumlee (2002) have argued, along with mandatory disclosure, the provision of additional disclosure may overcome, to some extent, the information asymmetry problem. Separation of ownership from control, one of the antecedents of agency theory, suggests that board independence is key to reducing the conflict between agent and principal. This insight seeks a resolution to the question posed by Jensen and Meckling (1976, p. 306): "why accounting reports would be provided voluntarily to creditors and stockholders"? It follows that a firm may disclose more information when the interests of the owners and board do not overlap. Board independence and a better monitoring system can ensure that an unscrupulous attitude towards disclosure does not exist. The internal mechanisms of corporate governance also reduce opportunistic disclosure policies, thereby further reducing information asymmetries and limiting the self-interest of agents. Overcoming information asymmetry is an essential tenet of a strong corporate governance regime in both developed and developing countries but is considerably more relevant for developing countries where corporate governance systems have not reached maturity (Claessens & Fan 2002).

Second, as already mentioned, corporate governance is the centre of decision making, control processes and management of conflict in a firm. As a result, decisions pertaining to voluntary disclosure are outcomes of these processes. So, voluntary disclosure provides an excellent opportunity to examine corporate governance through the lens of agency theory.

Third, managing voluntary disclosure of a firm is also subject to extra costs. The additional cost may be justified in a principal–agent relationship, which seeks to minimize information asymmetries, but this justification must be communicated to the shareholder to whom the agent is responsible. The additional costs will therefore tend to influence the agent–principal conflict and will subsequently have an effect on decisions regarding voluntary disclosure. Wright et al. (1996) argue

that "The nonfinancial rewards (or costs) are subject to consumption only by insiders, with shareholder consumption not possible".

Finally, the agent and principal relationship may also vary based on differences between the monitoring systems in place. These monitoring systems are based on the company's preferred corporate governance structure. From the Bangladeshi perspective, reformation of the security exchange commission may also stimulate firms to disclose, particularly voluntary disclosures. Therefore, the concept of agency theory is also closely related to the research context of this study.

In summary, corporate governance mechanisms have been widely considered as vital determinants of voluntary disclosure. For instance, board, ownership and audit committee structures (Garcia-Meca & Sánchez-Ballesta 2010; Khlif et al. 2015). These variables have been selected for the determinant of voluntary disclosure during the analysis phase of this research.

3.3.1.2 Legitimacy Theory

Within legitimacy theory, emphasis is placed on social acknowledgment, that is, a firm's relationship with society or the 'social contract'. This includes firm behaviour within a social framework (Nasi et al. 1997). The concept of legitimacy theory is outlined by Suchman (1995, p. 574) as a " … 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". Deegan (2006) elaborates on this issue by highlighting that firms should comply with the legal requirements imposed by society while simultaneously maintaining the social contract. The concept of a social contract addresses how a firm should operate within society by respecting the values and norms of that society. Failure to comply may lead to negative legal and social ramifications. Therefore, legitimacy theory considers how a firm should operate by satisfying the expectations of society, thereby legitimizing its operational activities (Deegan et al. 1996; Deegan & Gordon 1996; Guthrie & Parker 1989; O'Donovan 2002). In other words, legitimacy theory is grounded in the view that a firm should focus (or be perceived as focusing) on meeting its social expectations, by doing 'the right thing'. The concept of 'rightness' in this context is based on social norms and the consequences

of not doing the right thing (Dowling & Pfeffer 1975; Scott 1977; Suchman 1995) may not be necessarily established by laws.

Voluntary disclosure has been widely explored through the lens of legitimacy theory in the literature (Deegan 2002; Guthrie et al. 2006; Khan et al. 2013; Khan 2010; Muttakin & Khan 2014; O'Donovan 2002) and their relationship can be identified by the following features.

First, according to legitimacy theory, legitimizing firm activities are those in which a firm seeks to comply with the social values of the society in which it operates, and also acknowledges its activities through firm disclosures (Dowling & Pfeffer 1975). As a result, firms may be encouraged to focus on voluntary disclosures (Deegan 2002). Hence, the firm's legitimizing efforts and voluntary disclosure policies may be closely related.

Second, it has been demonstrated that a firm's activities have a significant impact on its image and this can translate to increases or decreases in firm value. Through voluntary disclosure, firms try to communicate with stakeholders to maximize their wealth. So, firms continually seek to legitimize operational actions through various channels of communication (Deegan 2002; Deegan et al. 2002; Guthrie et al. 2006; O'Donovan 2002). For instance, firms focus on convincing stakeholders that they are adhering to the social contract in regards to their operational activities and that they are not doing harm to society.

Finally, legitimacy theory emphasizes that the mechanisms of legitimacy may differ as the basis of a firm's legitimacy varies according to the country context, community and attitudes (Deegan et al. 2000). Since context is more important for voluntary disclosure as it is not enforced by regulation, these factors must be identified and examined to unveil the most significant operational activities that contribute to the firm's social contract.

3.3.1.3 Signalling Theory

Signalling theory, originally constructed by Spence (1973), has been used to explain labour market behaviour. Morris (1987) argues that the concept of signalling theory is applicable in any market to explore information asymmetry. An et al. (2011) note that a firm may reduce information asymmetry by considering

extra information (mostly positive information) as a signal. This extra information may also have an impact on stakeholders' perceptions towards the firm and affect firm performance (Whiting & Miller 2008). By considering an effective signal, information asymmetries can be reduced, and insufficient signals may worsen information asymmetry problem.

The concept of signalling and information asymmetry is closely associated with accounting research, particularly for voluntary disclosure issues. For instance, it could be argued that better signalling contributes to a firm's performance as it would encourage stakeholders to reassess the value of the firm, and thus make decisions more favourable to the firm (Whiting & Miller 2008), and expedite operational activities by reducing the cost of capital (Botosan 1997; Botosan & Plumlee 2002; Dhaliwal et al. 2011) and cost of debt (Sengupta 1998). Therefore, a firm may minimize operational costs through voluntary disclosure. Furthermore, by disclosing voluntarily, signals about operational activities, social commitment and sustainability may stimulate other positive impressions of the firm thereby creating a good reputation. Consequently, this positive image and reduction in information asymmetry also leads to better performance (Anderson & Frankle 1980; Shane & Spicer 1983).

Therefore, based on the concept of signalling theory, voluntary disclosure may act as a signal. That signal may then have an effect on firm performance. Accordingly, this study will explore the effects of voluntary disclosure on firm performance using signalling theory within a combined theoretical framework.

3.3.2 Interrelated Concepts Among the Theories

The concepts of the considered theories (agency, legitimacy and signalling) overlap to provide understandings as discussed below.

3.3.3.1 Interrelated Concepts of Agency and Legitimacy Theory

Agency theory mainly focuses on monitoring opportunistic behaviour within a firm with regard to the principal and agent relationship. The goal is to overcome conflict by ensuring the maximum interest of the principal while affirming other stakeholders' interests. In this scenario, voluntary disclosure may provide extra information to a range of stakeholders. This extra information may

encompass social, environmental and financial aspects to create real or perceived value for the relevant stakeholder. However, agency theory leans towards the creation of wealth as the resolution of conflict. This can attract significant costs and the interests of the principal, as the name suggests, comes first. Non-monetary considerations, which are no less able to be voluntarily disclosed, may not be addressed properly (Cormier et al. 2005). In contrast, legitimacy theory focuses on the macro-level, specifically the firm's social contract.

There appears to be some conflict between the theories. Nevertheless, an argument can be constructed that links the two. An establishing premise posits that a firm should respect social norms and values while operating. Under the concept of agency theory firms should primarily reduce information asymmetry and maximize shareholder value while managing several stakeholders. At the same time, ignoring social contract issues and avoiding voluntary disclosure may create a perception that the firm is avoiding its social obligations, thus reducing social welfare and jeopardizing its legitimacy. As a result, failure to voluntarily disclose may affect the firm's reputation negatively and increase litigation costs. The satisfaction of shareholders' interest may not be possible in this situation.

Therefore, the concept of agency theory interacts with the concept of legitimacy theory. In other words, the ideas of one theory complement the power of another theory to shed light on a given research topic more effectively.

3.3.3.2 Interactions between Legitimacy Theory and Signalling Theory

Based on the concept of legitimacy theory, to comply with the social contract, a firm should respect the social values and norms. Thus, firm will focus on more disclosure to reflect the compliance with the society. This approach interacts with the concept of signalling theory. For instance, a firm that is focused on reducing information asymmetry may provide sufficient signals to distinguish itself from another firm that achieves average performance. The signalling mechanism can create a positive impression of the firm among stakeholders (Chau & Gray 2002; Watson et al. 2002). Therefore, the concepts of both theories suggest that firms disclose extra information for facilitating and justifying operational activities. Legitimacy theory focuses on voluntary disclosure as a matter of

accountability whilst legitimizing its operational activities. Signalling theory also considers the reaction from the signal receiver as a part of the interpretive framework in explaining information asymmetries.

Therefore, despite having a different perspective on the role of disclosures, legitimacy and signalling theories both emphasize the consequences of the firm's actions. For example, legitimacy theory considers the consequences of managing the social contract, which is also considered as a signal of the reaction from stakeholders.

3.3.3.3 Interactions between Signalling and Agency Theory

Signalling theory addresses information asymmetry and the probable effects of voluntary disclosure. For instance, under signalling theory, firms reduce information asymmetry by sending an effective signal to stakeholders for justifying their operational activities, as well as creating a positive impression. In particular, voluntary disclosure may reduce information asymmetry and moderate the approach of maximizing shareholders' interest (firm performance) by influencing the cost of debt (Sengupta 1998) and capital (Botosan 1997; Botosan & Plumlee 2002; Dhaliwal et al. 2011). Thus, by reducing information asymmetries, firms may ensure the maximum interest of shareholders. This concept is closely associated with agency theory as the reduction of information asymmetry is a common feature. Therefore, a combination of both theories is also helpful to guide the effects of voluntary disclosure. For instance, based on the nature of the signal (voluntary disclosure), there might be an effect on firm performance (shareholder interest). Therefore, from an agency theory perspective, considering agent–principal conflict, the monitoring and controlling aspect, and maximizing shareholder value (Eisenhardt 1989; Fama 1980; Fama & Jensen 1983), an effective signal may facilitate a reduction in information asymmetry (Connelly 2011). Accordingly, voluntary disclosure may play a crucial role as a signal for moderating firm performance. On the other hand, the interaction and overlap between agency and signalling theory have already been documented in the literature (Morris 1987; Watson et al. 2002). In particular, due to the agent–principal conflict, a firm may

consider voluntary disclosure as a medium for reducing information asymmetry and hence the conflict. In relation to this Morris (1987, p. 52) states:

> Given the consistency of signalling and agency theories, it is conceivably possible to combine them to yield predictions about accounting choices not obtainable from either theory alone.

Therefore, integration of agency and signalling theory may also guide exploration of the determinants of voluntary disclosure and its possible effects.

3.3.3 Theoretical Framework for this Study

The theoretical framework for this thesis is an adaption of An et al. (2011) using a combination of agency, legitimacy, and signalling theories. In the preceding sections, voluntary disclosure is discussed in its respective theoretical contexts and the interactions among the theoretical concepts are also presented as summarized in Figure 3-2:

Figure 3-2 Integration of interrelated concepts

The combination of agency, legitimacy and signalling theory is discussed in order to outline the way in which An et al.'s (2011) theoretical framework has been adapted.

First, the concept of agency theory interacts with the concept of legitimacy theory. The idea of agency theory focuses on maximizing shareholders' interest, reducing conflicts of interest and information asymmetry, while the concept of legitimacy theory emphasizes management of the social contract. Separately and independently, these two theories have been widely applied in relation to organizational decision making. As a result, in regard to the decision to make voluntary disclosures, firms act in accordance with legitimacy theory, as well as applying the decision-making concepts of agency theory. The complementary

concepts that inform these respective theories are therefore integrated in the theoretical framework for this study. This enables a more thorough interpretation of data during the data capture and analysis phase of this thesis.

Second, the concepts of legitimacy theory and signalling theory integrate as both theories concentrate on communicating or giving a signal to stakeholders via voluntary disclosure. This integration allows for the effects of voluntary disclosure to be more deeply explored.

Finally, the concepts of signalling and agency theory integrate since, by giving a signal, a firm also intends to reduce information asymmetry. Therefore, in regards to the determinants of voluntary disclosure, a firm's signalling approach may also be influential.

Therefore, the integration of agency, legitimacy and signalling theory is associated with this study as it focuses on the examination of the determinants and effects of voluntary disclosure. In particular, during the decision-making process of voluntary disclosure, a firm should consider issues, such as, the maximization of shareholder interest, principal and agent conflict, information asymmetry and the social contract, as these issues may also have a direct effect on a firm's operation. Accordingly, the integration of agency and legitimacy theory guides research question one to explore at what extent corporate governance characteristics act as an explanatory factor for voluntary disclosure. Furthermore, a firm's attitude towards society and non-financial disclosure may act as a signal and affect perceptions of the firm for stakeholders. This perception may also have an impact on the operational context of a firm. Accordingly, the integration of legitimacy theory and signalling guides research question two to explore the effects of voluntary disclosure on firm performance. Finally, the effect of voluntary disclosure is also a significant agenda for the decision-making or controlling process to maintain operational activities. This context is aligned with the integration of signalling and agency theory. As a result, by considering the integration of agency, legitimacy and signalling theory, a more complete picture of voluntary disclosure is drawn. The key concepts of the theoretical framework for this study, along with the integration of considered theories and interrelated concepts are shown in Figure 3- 3

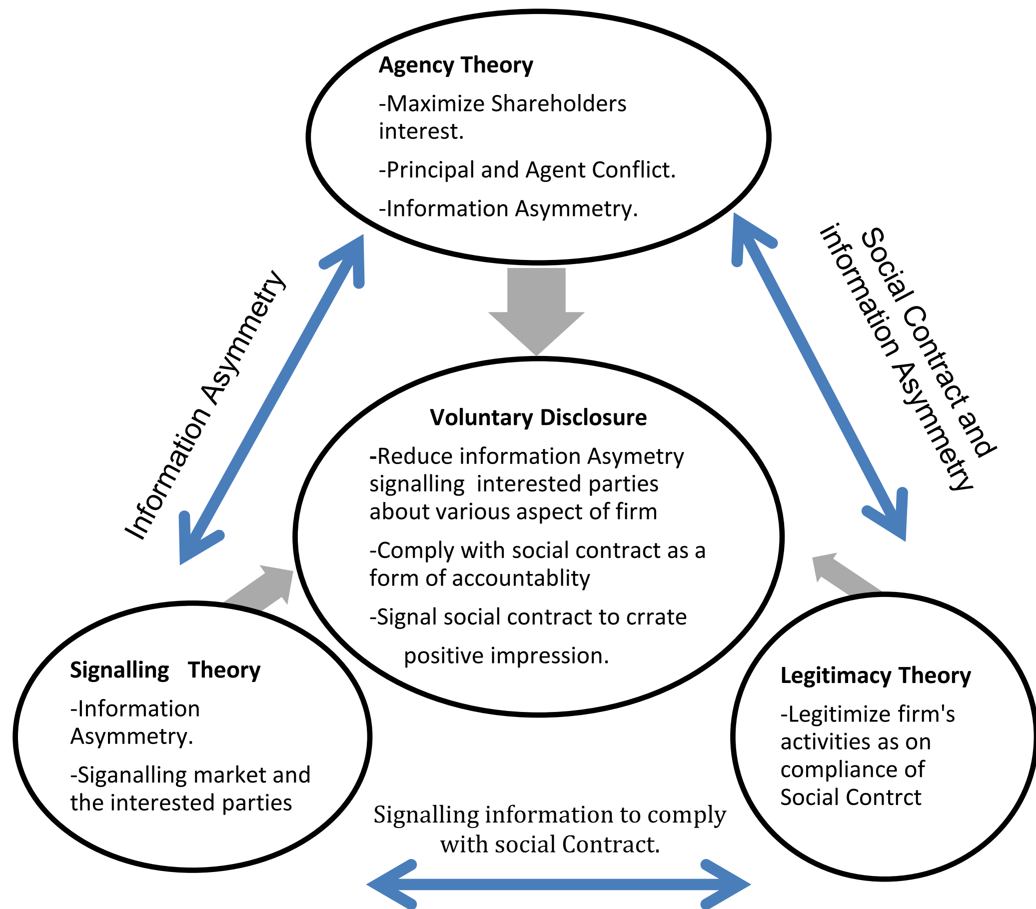

Figure 3-3 Combined theoretical framework

3.4 Summary and Conclusion

This chapter review the existing theoretical frameworks within voluntary disclosure studies and develops a combined theoretical framework for examining the research questions for this study.

The development of an appropriate theoretical framework for this study involves two steps. At the initial stage, individual theories were examined and reviewed and the combined theoretical framework elucidated. After reviewing various theories, the An et al. (2011) theoretical framework was found to be most suitable for this study, despite its limitations. At the final stage, the theoretical framework for this study has been constructed by following four steps. *First*, the limitations of the An et al. (2011) theoretical framework have been addressed. *Second*, the concepts of all the considered individual theories (agency, legitimacy and signalling) have been discussed within the context of voluntary disclosure.

Third, the interrelationships between agency, legitimacy and signalling theories have been elaborated and applied in the context of voluntary disclosure. *Finally*, a combined theoretical framework for this study has been developed. The developed theoretical framework provides robust guidance to investigate the determinants and effects of voluntary disclosure within Bangladesh, a developing country context. Bangladesh's historical, regulatory, social, corporate and environmental context is discussed in the next chapter. This will provide a solid foundation from which to develop hypotheses, also discussed in the next chapter.

Chapter Four: Research Context and Hypotheses Development

4.1 Introduction

n Chapters Two and Three the relevant literature was reviewed and a theoretical framework was developed to guide the selection of appropriate hypotheses and variables for statistical analysis. Development of a literature review and theoretical framework are indispensable components of a research project as they represent antecedents to the development of valid conclusions Kumar (2005). Since accounting and governance practices do not occur inherently and uniformly, a detailed examination of the research context is also necessary. The aim of this chapter is to investigate the research context from a national perspective and, by drawing comparisons, illustrate the nature of corporate governance principles and practices therein.

Bangaldesh is the research context and the two research questions relate to an exploration of the determinants of voluntary disclosure by considering corporate governance characterstics as a potential explanatory factor and the effects of voluntary disclosure on firm performance. In light of the research framework, literature review and research context, relevant hypotheses are developed to explore these research questions.

This chapter is organized as follows. Section 4.2 provides information on Bangladesh as the research context, including a general overview of Bangladesh in which the historical, economic, legal and regulatory structures are described in Sub-section 4.2.1. Sub-sections 4.2.2, 4.2.3 and 4.2.4 introduce corporate voluntary disclosure reporting, the corporate governance setting and capital market status. Section 4.3 presents a brief discussion of the key aspects of the research setting of this thesis. Section 4.4 expands on the research framework by investigating the widely used variables that were identified in the literature review and theoretical framework in Chapters Two and Three.

Section 4.5 develops hypotheses for the first research question. The hypotheses explore the potential determinants of voluntary disclosure by emphasizing corporate governance characteristics including CEO duality, board

size, board composition, presence and structure of sub-committees, audit committee independence, foreign ownership, director ownership, and institutional ownership. Section 4.6 presents the hypotheses related to the potential effects of voluntary disclosure on firm performance . A chapter summary and conclusion is presented in Section 4.7.

4.2 Background of Bangladesh

This section outlines cultural, social and other environmental factors unique to Bangladesh. This overview is necessary because cultural, social and other environmental factors influence and guide business practices (Scholtens & Dam 2007; Husted 2000), including the historical, economic and regulatory conditions.

4.2.1 Historical Overview

Bangladesh is a developing country situated in the region of South Asia with an area of 147,570 square kilometres and a population of 161 million people (World Bank 2017).[16] The area now known as Bangladesh was initially part of Bengal along with the state of West Bengal, which was a part of India (Smillie 2009). In 1757, the British company, the East India Company, seized power from independent Muslim monarchs and progressively colonized what is now present-day Bangladesh as part of a broader effort to colonize India. In 1947, a significant anti-colonial movement by the indigenous people of India, coupled with internal tensions between Hindus and Muslims, prompted the British to segregate India (Chowdhury 2004) thereby creating two different countries, namely India and Pakistan. The segregation meant that Bengal became part of Pakistan. In 1971, following nine months of fighting and internal political struggle, Bangladesh became an independent country.

Bangladesh has a common language, Bengali, and culture. Bengali is the only language in the world that a country has fought to defend and many Bengali speakers sacrificed their lives to retain it as their official language. As Bengali was enshrined as the national language on 21 February 1952, the date is now known as

[16] Source: World Bank, http://data.worldbank.org/country/bangladesh Visited 5/06/17 2.07 PM

‘International Mother Language Day’.[17] Besides Bengali, English is also widely spoken in Bangladesh. Islam is followed by 85% of the population; other religions in Bangladesh include Buddhism, Hinduism and Christianity.

4.2.2 Economic Overview

The International Monetary Fund (IMF) locates Bangladesh as the 43rd largest economy in the world (in purchase-price-parity terms) with an inspiring track record of progress. In particular, the Bangladeshi economy has maintained greater than 6% growth over the decade and reached 7.1% growth in 2015/2016 allowing it to achieve the status of a lower middle-income country in 2014 (World Bank 2017).[18] Due to this significant economic growth, Bangladesh is often considered as a new Asian tiger (Business Insider 2017).[19] The growth rate of Gross Domestic Product (GDP) also shows significant potential for economic development in Bangladesh (see Figure 4-1).

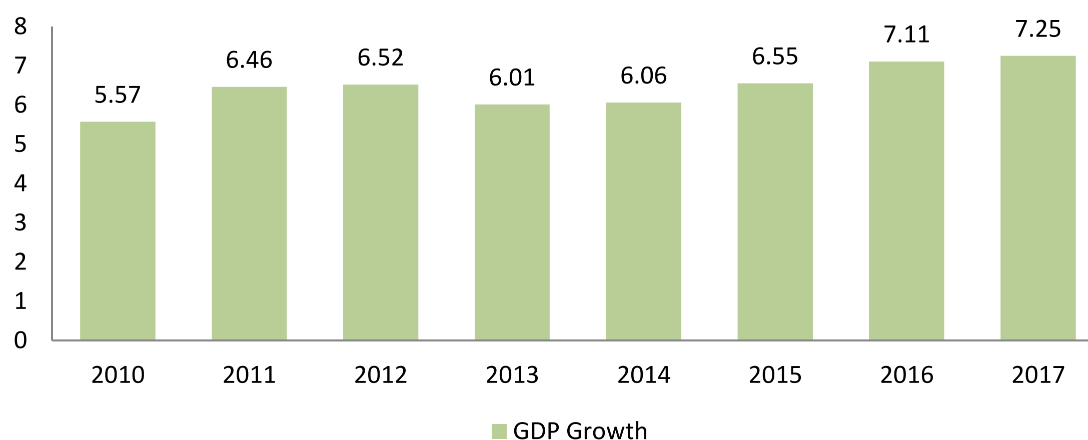

Figure 4-1 GDP growth rate of Bangladesh. Source: Bangladesh Bureau of Statistics[20]

[17] Source: UNESCO, http://www.unesco.org/new/en/education/themes/strengthening-education-systems/languages-in-education/international-mother-language-day Visited 5/6/2017 2.43 pm
[18] Source: World Bank, http://www.worldbank.org/en/country/bangladesh/overview#1 Visited 7/6/2017, 12.05 pm
[19] Source: Business Insider,https://www.businessinsider.com.au/bangladesh-is-the-new-asian-tiger-2017-4?r=US&IR=T Visited 5/6/2017, 2.48 pm
[20] Source: Bangladesh Bureu of Statistics, http://www.bbs.gov.bd/site/page/dc2bc6ce-7080-48b3-9a04-73cec782d0df/Gross-Domestic-Product-(GDP) Visited 7/6/2017 1.53 pm

Despite economic development, Bangladesh remains a relatively poor country and many people, particularly those in isolated and rural areas, still suffer deprivation from basic human needs; while there has been substantial progress in poverty reduction, the proportion of poverty is still high.[21] Furthermore, income inequality pervades the social landscape and, when compared with other South and South-East Asian nations, it is considered alarming.[22] Therefore, despite substantial economic growth, Bangladesh seeks to leverage areas where it maintains an economic advantage and stimulate foreign investment[23] to augment the well-being of its citizens.

4.2.3 Legal and Regulatory Structure Overview

Bangladesh is regarded as a common law country and the underpinnings of the current legal and judicial system are based on British law (Ferdous et al. 2014; Panday & Hossain Mollah 2011). Panday and Hossain Mollah (2011, p. 6) indicate that the judicial system in Bangladesh has,

> … passed through various stages and the process of evolution has been partly indigenous and partly foreign and the legal system of the present day emanates from a mixed system which has structure, legal principles and concepts modelled on both Indo-Mughal and English law.

However, the legal system is also affected by sociocultural values and religious guidelines that vary from English law. Significant corporate legislation includes: the Companies Act 1994; the Bank Companies Act 1991; the Financial Institutions Act 1993; the Bangladesh Bank Order 1972; the Bankruptcy Act 1997; the Securities and Exchange Ordinance 1969; the Securities and Exchange Commission Act 1993; the Securities and Exchange Rules 1987; the Insurance Act 1938; Insurance Corporations Act 1973; and the Income Tax Ordinance 1984.

Besides these legal and government regulations significant regulatory bodies also play a crucial role in the corporate landscape of Bangladesh. Most notable are the BSEC, the Registrar of Joint Stock Companies and Firms (RJSC),

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[21] Source: http://www.worldbank.org/en/country/bangladesh/overview Visited 10/6/2017 11.44 am
[22] Source: http://www.thefinancialexpress-bd.com/2017/01/27/60297/Inequality:-A-wake-up-call-for-Bangladesh Visited 7/6/2017 7.59 pm
[23] Source: http://www.worldbank.org/en/news/press-release/2017/06/05/bangladesh-needs-a-proactive-strategy-to-address-increasing-jobs-challenges-world-bank-ilo-workshop Visited 7/6/2017, 8.10pm

the Institute of Chartered Accountants of Bangladesh (ICAB), the Stock Exchanges, The Institute of Cost and Management Accountants of Bangladesh (ICMAB), Bangladesh Enterprise Institute (BEI), and Bangladesh Bank (BB) (Arif & Tuhin 2013; Reaz & Arun 2006; Solaiman 2006).

The BSEC is the primary government regulator concerned with corporate governance (Siddiqui 2010) and is designed to oversee capital market activities. The BSEC was established in 1993 when it replaced the office of the Controller of Capital Issues (CCI), which was formed in 1947. In particular, the BSEC emphasizes protection of the interests of investors, establishment of fair, transparent and efficient securities markets, and ensuring appropriate issuance of securities and compliance with securities laws.[24] The Chairman and members of the BSEC are selected by the Government and the institution is attached to the Ministry of Finance. The Securities and Exchange Ordinance 1969 provides the legal framework for the securities market.

The RJSC is responsible for registering companies under the Companies Act 1994 (Arif & Tuhin 2013). Registered firms in Bangladesh are required to submit all financial and non-financial information to the RJSC. It is administered by the Ministry of Commerce and responsible for monitoring a firms' compliance with the Companies Act 1994.

The ICAB is one of the two main professional accountancy bodies in Bangladesh. It was created under the Bangladesh Chartered Accountants Order in 1973. The ICAB regulates the accountancy profession, supervises professional ethics and codes of conduct of its members, and provides specialized training and professional expertise.[25] The ICAB also holds the right to conduct any disciplinary action against ICAB members for violation of the regulation. In 1999, the ICAB adopted International Accounting Standards (IASs), International Financial Reporting Standards (IFRSs), and International Standards on Auditing (ISAs) as Bangladesh Accounting Standards (BASs), Bangladesh Financial Reporting Standards (BFRSs) and Bangladesh Standards of Auditing (BSAs) respectively. It

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[24] http://www.secbd.org/

[25] http://www.icab.org.bd/webGeneralContent/view/14245 Visited 30-11-2017 at 3.04 pm

should be noted that these initiatives were commenced as an outcome of a World Bank Grant. In regards to this grant Zaman and Shiraz (2005, p. 826) state,

> The IASs adoption process was initiated in August 1999 following a US$200,000 World Bank grant to the Bangladeshi Government for the development of Accounting and Auditing Standards in Bangladesh. The World Bank's Institutional Development Fund (IDF) grant was targeted at enhancing the institutional capacity of the ICAB for the adoption of IASs in the country. On its part, the ICAB was required to provide the additional US$20,000 required to help accomplish this task. The Government then delegated the process to the BSEC as the main institution responsible for overseeing the process.

The ICMAB is the other major professional accountancy body in Bangladesh and an independent professional body under the Ministry of Commerce of Bangladesh. This body offers professional qualifications in Cost and Management Accountancy, with a focus on accounting for business.

The BEI is another private organization that focuses on corporate governance regulations in Bangladesh. In the year 2000, the BEI was established as a non-profit organization and mainly relies on funding from donors. In 2004, the BEI developed a code for corporate governance.

The BB is the Central Bank of Bangladesh and was established in 1972. It operates under the provisions of the Banking Companies Act 1991, as amended in 2003 and 2013, and the Financial Institutions Act 1993. The BB is also responsible for promoting and developing the domestic financial market. Banking and finance companies are regulated by the BB.

4.3 The Research Setting – Voluntary Disclosure, Governance and Market Conditions

This thesis examines the determinants and effects of voluntary disclosure with a focus on corporate governance characteristics and firm performance. Thus, corporate voluntary disclosure reporting, capital markets and corporate governance are important and discussed in the following sections.

4.3.1 Corporate Voluntary Disclosure Reporting in Bangladesh

The awareness of, and importance attributed to, voluntary disclosures has increased in the Bangladesh corporate context in this century (Azim et al. 2009; Sobhani et al. 2009). In particular, as mentioned in Chapter One, voluntary disclosure of social, environmental and intellectual capital carries extra significance within the Bangladeshi context. There are several factors that explain firms' voluntary disclosures. *First,* there are external pressures, such as those from international regulators and multinational firms (Belal & Owen 2007; Islam & Deegan 2008), as foreign ownership is one of the dominant factors driving the Bangladeshi capital market (Imam & Malik 2007). *Second,* firms may be subject to a threat to their reputation (Azim et al. 2009) as voluntary disclosure may stimulate positive returns and bolster a firm's reputation. As a fast growing developing country, firms from Bangladesh are comparably more keen to provide additional information as a business strategy. This is advantageous as Bangladesh is anxious to promote foreign investment and a sound corporate reputation can enhance these possibilities. Subsequent foreign investment may also stimulate corporate accountability and reporting, thereby increasing the demand for transparency in business practices (Belal & Owen 2007; Muttakin & Khan 2014). *Third,* local regulators in Bangladesh have started to appreciate voluntary disclosure. For instance, Khan (2010, p. 85) states,

> Recently, BB encourages commercial banks to take part CSR activities enthusiastically, which might pave the banking sectors way to become more structured on the ideas of CSR issues. BB also advised banking and other financial institutions to move towards implementation of CSR programme.

Fourth, firms place an emphasis on voluntary disclosure for fear of a reputational threat from stakeholders' perceptions of firms (Azim et al. 2009). Therefore, by considering voluntary disclosures, firms may discharge formal and informal accountabilities and thereby reflect the imperatives of Western social values and norms. *Finally,* although the Bangladesh economy is developing, it is also subject to criticism for poor socio-cultural indicators and corruption at varying levels (Azmat & Samaratunge 2009; Islam & Deegan 2008). For issues such as poverty, human rights breaches, ineffective corporate governance and the impacts of climate change, firms may choose to emphasize voluntary disclosures (Moyeen & West 2014).

Voluntary disclosures of firms have therefore progressed as an important issue within Bangladesh. Many firms have already adopted voluntary disclosure in a bid to distinguish themselves from other firms and receive positive attention both locally and internationally, whilst simultaneously achieving enhanced economic benefit.

4.3.2 Capital Market of Bangladesh

In recent times, Bangladesh has significantly expanded economically with the number of securities, trade volume and market capitalization increasing. However, two significant capital market debacles have occurred. In 1996, regulatory failure allowing for fraudulent activity was considered as the main reason for a market collapse.[26] Accordingly, after the 1996 market crash, Bangladesh introduced a significant number of regulatory reforms to protect investors. Solaiman (2006, p. 203) states:

> The disaster came as a blow to investors and regulators alike. The government became more concerned about the market, which prompted the authorities to bring about further reforms in securities regulation.

In 2010, a further share market collapse occurred. Among various reasons for this collapse was the weak enforcement capacity of the BSEC. Weak corporate governance mechanisms may also have contributed.[27] Accordingly, further reform and regulations were put into place with the intention to ensure the interests of investors. These two events have significantly influenced Bangladeshi corporate regulations.

There are two stock exchanges in Bangladesh: the Dhaka Stock Exchange (DSE) and Chittagong Stock Exchange (CSE). The Stock Exchanges are also considered as important corporate governance and firm disclosures in Bangladesh.

The DSE was established in 1954 as the East Pakistan Stock Exchange Association Ltd. It started formal trading in 1956 and was renamed the Dhaka Stock Exchange Ltd in 1964. Due to the war for independence, trading on the DSE was discontinued in 1971 and resumed in 1976. The DSE is registered as a public limited

[26] Source: http://www.thedailystar.net/law/2006/10/01/fmr.htm Visited 19/06/2017 10.31 am
[27] Source: https://www.adb.org/sites/default/files/linked-documents/45253-002-sd.pdf

company, and its operations are regulated by its articles of association, along with the Securities and Exchange Ordinance 1969, Companies Act 1994, and Securities & Exchange Commission Act 1993. The DSE regulations must be approved by the BSEC. As at December 2016, total market capitalization for the DSE was 3412441.493 (BDT Million).[28] A summary of firms listed on the DSE is presented in Table 4.1.

Table 4-1 Summary of DSE listed firms

Industry	**Number of firms**
Bank	30
Cement	7
Ceramics Sector	5
Corporate Bond	2
Debenture	8
Engineering	33
Financial Institutions	23
Food & Allied	18
Fuel & Power	18
Insurance	47
IT Sector	7
Jute	3
Miscellaneous	12
Mutual Funds	35
Paper & Printing	2
Pharmaceuticals & Chemicals	28
Services & Real Estate	4
Tannery Industries	6
Telecommunication	2
Textile	48
Travel & Leisure	4
Treasury Bond	221
Total Companies:	**563**

Source: http://www.dsebd.org/by_industrylisting1.php

The CSE started operations in 1995. Similar to the DSE, CSE regulations are also subject to approval by the BSEC. It should also be noted that most of the securities traded on the CSE are listed on the DSE. As at December 2016, total market capitalization for the CSE was 2,741,343 (BDT Million)[29]. A summary of CSE firms is presented in Table 4.2.

[28]Source : http://www.dsebd.org/recent_market_information.php Visited 10/6/2017 1.38 pm
[29]Source : http://www.cse.com.bd/historical_market.php Visited 10/6/2017, 1.37 pm

Table 4-2 Summary of CSE listed firms

Industry	Number of firms
Bank	29
Cement	7
Ceramics Sector	5
Corporate Bond	2
Energy	16
Engineering & Electrical	27
Food & Allied	12
General Insurance	30
ICT	7
Life Insurance	12
Miscellaneous	14
Mutual Funds	35
Paper & Printing	4
Pharmaceuticals & Chemicals	23
Services & Property	7
Telecommunication	2
Textile & Clothing	43
Leather & Footwear	6
Leasing & Finance	22
Total Companies:	**303**

Source: http://www.cse.com.bd/company_by_industry.php

4.3.3 Corporate Governance in Bangladesh

While Shleifer and Vishny (1997) argued that corporate governance mechanisms do not exist in less developed countries, it can be argued that this is no longer the case, with Bangladesh contributing to this turnaround by actively pursuing the adoption of international standards of corporate governance practices (Rashid et al. 2010).

From a country perspective, a major aim of adopting corporate governance is to enhance investors' confidence in the capital market and facilitate transparency. Within Bangladesh, the focus on corporate governance was prompted by the share market collaspes in 1996 and 2010. In particular, after the first stock market crash, the Asian Development Bank (ADB) provided funding of $80 million as part of the Capital Market Development Program (CMDP). The purpose of this project was to improve the transparency and efficiency of the capital market and restore investor confidence. Furthermore, the BSEC adopted corporate governance guidelines in 2006 (BSEC order No. BSEC/CMRRCD/2006-158/Admin/02-08, dated 20 February 2006). In addition, other steps were initiated by international financial

institutions (IFI), funded by the private sector and the BEI (Sobhan 2014). The BEI issued the corporate governance code in 2004. At the same time, the ICAB also introduced a series of corporate governance principles and rules (Muzumdar 2006).

In 2010, the effectiveness and implications of corporate governance practices was questioned. In response, the BSEC reformed corporate governance guidelines of Bangladesh. In 2012, an amendment to the corporate governance guideline was made, addressing seven important issues, including: a focus on the number of directors; a requirement for a propotion of independent directors; qualifications for independent directors; addressing CEO duality; and the requirement for directors to report to shareholders. The 2012 guideline also addresses the appointment of a chief financial officer and the formation of an audit committee and a description for its role of its members. Moreover, reporting requirements and compliance issues were addressed to comply with Western corporate governance structures, as well as ensuring transparency to stimulate investor confidence. The key features of the BSEC's corporate governance guidelines for 2012 are summarized in Table 4.3.

Table 4-3 Brief summary of the key feature of Bangladesh Security Exchange Commission Corporate Governance Guidelines

Description		BSEC's Corporate Governance Guidelines (2012)
BOARD OF DIRECTORS	1.1 Board Size	Board should have minimum 5 members with maximum members of 20.
	1.2 Board Composition	At least one-fifth (1/5) of the total number of Directors shall be Independent Directors. The criteria for being an independent director is also prescribed by BSEC.
	1.3 Qualification of Independent Director	Independent director shall be a knowledgeable individual with integrity who is capable of ensuring significant issues including compliance with financial, regulatory and corporate laws and can make a meaningful contribution to the business.
	1.4 Chairman of the board and chief executive officer	Chairman of the board and chief executive officer should be filled by two different people.
	1.5 The Directors' Report to Shareholders	BSEC prescribed information should be included in Directors statements in the Directors' Report prepared under section 184 of the Companies Act, 1994 (Act No. XVIIIof 1994).
CHIEF FINANCIAL OFFICER (CFO), HEAD OF INTERNAL AUDIT (HIA), AND COMPANY SECRETARY (CS)	2.1 Appointment	Firm should appoint CFO, HIA, CS and also define their respective roles, responsibilities.
	2.2 Requirement to attend the Board Meetings	The CFO and the CS shall attend the meeting of the Board of Directors
AUDIT COMMITTEE	3.1 Constitution of the Audit Committee	Firm should have an Audit committee as a sub-committee and there should be minimum 3 members
	3.2 Chairman of the Audit Committee	An independent member should chair the audit committee.
	3.3 Role of Audit Committee	Audit committee should oversee the BSEC set roles
	3.4 Reporting of the Audit Committee	Audit committee should report to the board of directors, authorities, the shareholders and general Investors
EXTERNAL/STATUTORY AUDITORS		The issuer firm should not engage its external/statutory auditors to perform the BSEC set services of the company.
SUBSIDIARY COMPANY		For a subsidiary company, BSEC set guidelines for board compositions holding company ruling is applicable. For a subsidiary company, at least one independent director should be from the holding company. The audit committee of holding firm should also review the financial statement of the subsidiary firm.
DUTIES OF CHIEF EXECUTIVE OFFICER (CEO) AND CHIEF FINANCIAL OFFICER (CFO)		The CEO and CFO should certify that they reviewed the financial statement and as on their best knowledge there are no transactions that involved fraudulent, illegal or violation of the company's code of conduct.
REPORTING AND COMPLIANCE OF CORPORATE GOVERNANCE		The company shall obtain a certificate from a practicing Professional Accountant/Secretary (Chartered Accountant/Cost and Management Accountant/Chartered Secretary) regarding compliance of conditions of Corporate Governance Guidelines of the Commission and shall send the same to the shareholders along with the Annual Report on a yearly basis

4.4 Research Framework

For any research, a coherent and robust framework that seeks effective outcomes is essential. Kumar (2005, p. 94) emphasizes the significance of research design (framework) by stating that,

> research design is a procedural plan that is adopted by the researcher to answer questions validly, objectively, accurately and economically … you will need to detail in your research design the rationale and justification for each decision that shapes your answers to the 'how' of the research journey. In presenting your rationale and justification you need to support them critically from the literature reviewed. You also need to assure yourself and others that the path you have proposed will yield valid and reliable results.

This thesis will focus on examining the determinants and effects of voluntary disclosure within the Bangladeshi context. For voluntary disclosure, three dimensions, including social, environmental and intellectual capital disclosure, are considered. In addition to exploring the determinants of voluntary disclosure, this study relies on the characteristics of corporate governance as a core aspect of a firms' decision making and monitoring process. In light of the literature and theoretical guidelines, this study considers ten characteristics of corporate governance including: CEO duality, board size, board composition, existence of sub-committee, audit committee composition, foreign ownership, director ownership and institutional ownership. Furthermore, to explore the potential effect from voluntary disclosure, firm performance is central to the second phase of this research and must therefore be adequately conceptualized. This study considers indicators from three different approaches including: ROA, ROS, MCAP, EPS and Tobin's Q. The research framework of this study is shown in Figure 4-2.

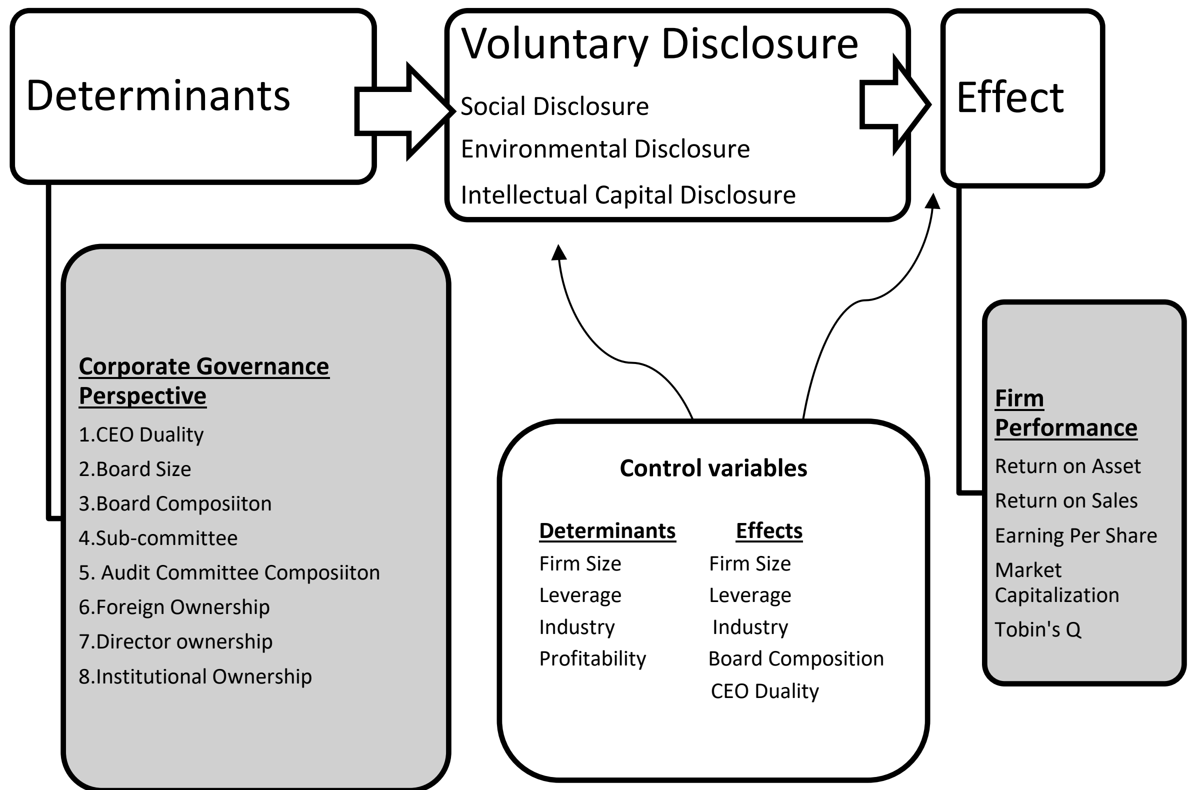

Figure 4-2 Research framework with the variables

4.5 Hypothesis: The Relationship between Corporate Governance Characteristics (Determinants) and Voluntary Disclosure

Based on the research framework of this study (Figure 4-2) and evidence from the literature (refer to Chapter Two), the characteristics of corporate governance are considered to be used as an explanatory factor for the voluntary disclosure of a firm. The following sub-sections will briefly set out the central theoretical guideline along with existing literature relevant to each corporate governance characteristic and voluntary disclosures for developing hypotheses.

4.5.1 CEO Duality

CEO duality refers to the dual leadership structure of a firm where one individual performs the role of CEO and chairperson of the board (Rechner & Dalton 1991). In other words, CEO duality denotes the existence of dominant personalities (Ho & Wong 2001), who play two crucial leading roles simultaneously and may dominate decision making.

Agency theory suggests that having the same person as CEO and board chairman may lead to opportunistic decision making (Jensen & Meckling 1976). For example, the CEO may have additional information compared to other non-executive directors. As a result, having CEO duality may provide the opportunity to use internal information for one's own benefit instead of making decisions for the benefit of shareholders or other stakeholders. In addition, Jensen (1993) and Blackburn (1994) argue that CEO duality might emasculate the monitoring power of the board. Furthermore, it could also be claimed that it 'opens the gate' for the CEO to influence board members.

In line with agency theory, a large number of studies posit that CEO duality distorts transparency as well as weakens the monitoring power of a board, for instance, regarding the relationship between voluntary disclosure (Allegrini & Greco 2013; Huafang & Jianguo 2007), intellectual capital disclosures (Cerbioni & Parbonetti 2007) and social disclosure (Giannarakis 2014b). These studies concur that CEO duality reduces the independence of the board. After considering a meta-analysis, Samaha et al. (2015) further confirms the negative association between CEO duality and voluntary disclosure.

However, it has also been argued that CEO duality provides the benefit of a unified leadership structure by reducing information sharing costs and conflict of interest between the CEO and the board chairman (Anderson & Anthony 1986; Samaha et al. 2015). Thus, there could be a positive relationship between CEO duality and voluntary disclosure. Hidalgo et al. (2011) report a positive relationship (by considering nonlinear relationships) between CEO duality and intellectual capital disclosure after examining 100 Mexican firms. They note that the benefits of CEO duality outweigh the costs and that CEO duality provides the opportunity of effective communication in situations where it may otherwise be absent.

In contrast, Haniffa and Cooke (2002), Cheng and Courtenay (2006), and Barako et al. (2006a) report no significant relationship with voluntary disclosure. They argue that a CEO is more concerned about his or her own performance in the two different roles. In addition, the CEO might be motivated to be less accountable to the interests of all stakeholders. Thus, the emphasis is on regular firm activities and mandatory disclosure rather than focusing on voluntary issues.

Within the Bangladeshi context, after examining 116 manufacturing firms from the years 2005–2009 no significant relationship between social (Khan et al. 2013) and intellectual capital disclosure (Muttakin et al. 2015) was identified. As a possible reason for this finding, both studies claim that within Bangladesh the CEO and chairperson are very often from the same family and thus CEO duality may have any impact. However, after considering 155 listed firms and considering data from after the 2010 market collapse, Muttakin et al. (2016) reports a significant negative association of CEO duality with social disclosure. Their study reports that additional powers were conferred upon a CEO due to CEO duality and that CEO preferences were prevalent. Furthermore, it was noted that other directors supported or were otherwise influenced by the CEO's decisions.

Consistent with this recent study from Bangladesh, it can be argued that due to extra power, a CEO may ignore criticism or negative views from other board members regarding voluntary disclosure items and may be more concerned about the operational efficiency of a firm (Muttakin et al. 2015). Thus, monitoring and transparency of a firm turn is less effective when CEO duality is in place (Gul & Leung 2004). Within the Bangladeshi context, the relationship between CEO duality and voluntary disclosure is not well documented, and most of the focus is limited to social disclosure. The results of these limited studies are also contradictory. Thus, further investigation involving a more comprehensive list of variables may provide a more in-depth understanding and situate the current study as a significant contributor to our understanding of corporate governance practices.

Therefore, considering mixed findings in the literature and lack of documentation within Bangladesh, Hypothesis 1(a) is developed as follows:

H1(a): *CEO duality is associated with voluntary disclosure.*

4.5.2 Board Size

Board size refers to the total number of directors on the board. Board size is a vital factor for the monitoring system of a firm and is widely considered as an important feature of corporate governance (Fama & Jensen 1983; Giannarakis 2014a; Lee & Chen 2011).

Based on the concept of agency theory, interested parties (e.g., shareholders, policymakers, local stakeholders) expect adequate information (disclosure) from the board of directors since they are nominated to represent their interests (Davidson et al. 1996). This implies that a diverse and larger board can contribute to the production of adequate information. A larger board size can accumulate greater experience, knowledge (Haniffa & Cooke 2002) and expertise based on the various backgrounds of individual members. Given this relationship, a larger board provides an opportunity to improve the decision-making processes of a firm by utilizing the values, skills and experience of directors, which can potentially lead to the improvement of voluntary disclosure practices. Brown et al. (2006) advocate larger board size. They suggest that ethics, social values and the will to perform certain activities (such as donations for social events or helping poor people in the community) vary from person to person, and that larger boards offer the scope to have social values represented on the board.

A significant number of prior studies investigating this issue has suggested that a larger board size is positively associated with voluntary disclosure, including social, environmental and intellectual capital disclosures. Allegrini and Greco (2013) assert that a larger board may offer a wider ownership representation and may therefore place emphasis on a broader range of stakeholders. Akhtaruddin et al. (2009) put forward the idea that the collective expertise and experience of larger boards facilitates the improvement of corporate control, transparency and value creation. Transparency, in particular, implies that firms may be more attentive to voluntary disclosure. In addition, regarding social disclosure, Esa and Anum Mohd Ghazali (2012) suggest that larger board size contributes to a diversity of experience, knowledge and skills. This diversity may stimulate transparency and a concern for social issues, thereby leading to an augmented civic approach by the company. The upshot of this scenario is that the company may be more attuned to the concerns of a wider range of stakeholders and may, therefore, disclose a broader set of information voluntarily. This perspective is further evidenced by Giannarakis (2014b), who explains that a larger board stimulates board monitoring. There is also support for the larger board in relation to intellectual capital disclosures. Abeysekera (2010) put forward that a larger board has the potential to bring in the various resources needed to meet global challenges more effectively. Moreover,

after applying a meta-analysis of 64 studies, Samaha et al. (2015) strongly supports the positive association between board size and voluntary disclosure in relation to environmental issues, similar to that presented by Esa and Anum Mohd Ghazali (2012)

In contrast to the supporting arguments presented above, a larger board is criticized for a potential lack of communicative ability as it is challenging to manage effective communication among a large number of people. Jensen (1993, p. 865) asserts that having a small board is more efficient at monitoring and control of the CEO. In addition, John and Senbet (1998) indicate that, due to complicated communications, the benefit of the larger board may be outweighed by delayed decision making. Chen (2008) further criticizes larger boards by arguing that smaller boards encounter fewer obstacles. Furthermore, Vafeas (1999) advocate for a smaller board since, due to poor communication, an overbearing CEO may dominate a larger board. Consistent with the argument that a larger board may lead to poor monitoring, for environmental disclosure, Rao et al. (2012) argue that disclosure decisions require significant involvement and coordination, which may be difficult to achieve with a larger board. Cerbioni and Parbonetti (2007) write that a larger board is negatively associated with intellectual capital disclosure. Similarly, Veronica and Bachtiar (2010) report a negative relationship with social disclosure.

However, it can also be argued that board size is not significantly associated with voluntary disclosure. For example, Cheng and Courtenay (2006) report no significant relationship after considering 104 firms listed on the Singapore Stock Exchange (SGX) in 2000. In addition, after considering 91 Spanish firms in 1999, Arcay and Vazquez (2005) report the same result.

Within the context of Bangladesh, the relationship between board size and voluntary corporate disclosure is not well documented. After considering 120 listed firms Rouf (2011) reports a positive relationship with voluntary disclosure. Muttakin et al. (2016) further find a positive relationship with social disclosure.

Based on the above discussion, it appears that there is support for the idea that larger board size provides an opportunity for a firm to gather expertise, experience and knowledge that is vital for the functions of monitoring and control. Furthermore, due to the presence of a more diverse range of people on the board,

the values and intentions inherent in larger boards varies. This may lead to a push for greater transparency thereby encouraging voluntary disclosure. Such positive attitudes are tempered by another, perhaps smaller, group of researchers who present the argument that having more people causes communication problems and disagreement with regard to items of voluntary disclosure.

Within the Bangladeshi context, the relationship between board size and voluntary disclosure is not well documented. With the paucity of research in this context, it is difficult to predict how board size will influence voluntary disclosure. The perspective adopted in the following hypothesis is consistent with the larger group of researchers who suggest that increased board size leads to greater transparency, which leads to the production of more voluntary disclosure

Therefore, considering mixed findings in the literature and lack of documentation within Bangladesh, hypothesis 1(b) is developed as follows:

H1(b): *There is an association between board size and voluntary disclosure.*

4.5.3 Board Composition

Board composition refers to the proportion of independent directors as well as the gender and nationality of board members. For this aspect, the proportion of non-executive directors is considered to be the most significant factor having an impact on decision making and control (Dalton et al. 1998).

This topic can be viewed in light of agency theory, which suggests that the management of the firm is in the hands of directors who are potentially opportunistic and can manipulate accounting numbers for their own interest (Shleifer & Vishny 1997). It is argued that the presence of independent directors on the board may improve monitoring and also reduce agency conflicts and subsequent costs (Fama & Jensen 1983). It is further argued that the augmented monitoring function may enhance corporate transparency by encouraging voluntary disclosure and further reduce agency costs (Healy & Palepu 2001). Taken together, these arguments imply that greater transparency, coupled with the potential increase in voluntary disclosure, means that independent directors facilitate the reduction of information asymmetry (Allegrini & Greco 2013; Porta et al. 2002). Furthermore, independent directors emphasize the development of a positive reputation, whether

artificially projected, genuine or perceived. In this scenario, voluntary disclosure becomes the mechanism used to relay a signal of effective management (Patelli & Prencipe 2007). It is expected that the presence of independent directors on the board may therefore have a major role in policymaking regarding voluntary disclosure.

A significant number of studies consider board composition, and the presence of independent directors in particular, as an important factor that contributes to the voluntary production and communication of certain social, environmental and intellectual capital disclosures. Of these studies, many propose that the presence of independent directors is positively associated with voluntary disclosure. Cheng and Courtenay (2006) base their exploratory study on a data set of 104 firms from the Singapore stock exchange for the years 1998 and 2000 and find a positive relationship. Lim et al. (2007) also present evidence that board composition and the presence of independent directors, in particular, is positively related to the preparation of voluntary disclosures. After applying a meta-analysis of 27 studies, Garcia-Meca and Sánchez-Ballesta (2010) report that voluntary disclosure increases as the proportion of independent directors increases. Samaha et al. (2012) have a similar finding from their examination of 100 Egyptian listed firms. This positive association is further confirmed by Samaha et al. (2015) in their meta-analysis of 64 studies. These findings support the argument that an increased proportion of independent directors increases the monitoring capability of a firm and stimulates transparency.

However, it could also be argued that independent directors are more concerned with firm performance and keen to reduce any additional cost to increase profitability. Thus, independent directors may ignore any additional disclosure for cost-efficiency reasons. Accordingly, Eng and Mak (2003) and Barako et al. (2006b) report a negative relationship between independent directors and voluntary disclosure. In addition, Esa and Anum Mohd Ghazali (2012) suggest a negative relationship between independent directors and social disclosure after examining 27 Malaysian firms for the years 2005 and 2007. This study asserts that independent directors might be more concerned with firm financial performance while social issues are not a priority.

Aside from these positive and negative correlations, some studies report no significant relationship between independent directors and voluntary disclosure. Alves et al. (2012) report an insignificant relationship after examining 140 Iberian Peninsula (38 Portugal and 102 Spain) firms for the year 2007. Similarly, Ho and Wong (2001) and Hidalgo et al. (2011) report no significant relationship after examining 97 Hong Kong firms for the year 1997 and 100 Mexican firms for the years 2005 to 2007 respectively.

In the Bangladeshi context, Muttakin et al. (2016) consider board independence as a control variable and assert a positive relationship between the proportion of independent directors and social disclosure. Khan et al. (2013) have similar findings in their longitudinal study over the years 2005 to 2009 from a data set of 116 manufacturing firms. This study asserts that independent directors are utilized by Bangladeshi firms to manage social issues and are inserted as a functioning element of the monitoring mechanism. Similarly, Khan (2010) also reports a positive relationship between board composition and social disclosure after examining 30 banks for the period 2007–2008 and determines that non-executive directors are keen to legitimize firm activities by considering social issues. In addition, Rashid and Lodh (2008) document a significant positive relationship for social disclosure. Regarding intellectual capital disclosures, Muttakin et al. (2015) report a positive relationship with independent directors after examining 116 non-financial firms for the period 2005 to 2009.

The majority of studies above suggest that the presence of independent directors increases the monitoring ability of a firm and stimulates the desire for transparency. A smaller group argues that independent directors are more keen to demonstrate their aptitude for operational efficiency whilst ignoring optional agendas related to voluntary disclosure. From the limited set of prior studies in Bangladesh, it was argued mainly that board composition, specifically the amount of independent directors, is significant for monitoring and legitimizing firm activities and that presence of independent directors is positively associated with voluntary disclosure.

Therefore, considering mixed findings in the literature, hypothesis 1(c) is developed as follows:

H1(c): *There is a relationship between board composition and voluntary disclosure.*

4.5.4 Sub-committee

A sub-committee facilitates the monitoring activity of a firm. From the perspective of agency theory, Fama and Jensen (1983) suggest that audit, nomination and remuneration sub-committees perform specific responsibilities in the decision-making, as well as the control process, of a firm. Therefore, the operational activities of firms can be monitored more intensively. This may, in turn, stimulate voluntary disclosure and reduce information asymmetries (Collier 1993; Fama 1980; Vafeas 2000).

Carson (2002) describes the role of the audit, nomination and remuneration committees. The audit committee plays a key role for firm monitoring and regulatory compliance. The nomination committee considers directors' skills and reviews the performance of the board on a regular basis. The remuneration committee focuses on the terms and conditions of remuneration offered to senior management of a firm. A firm may consider utilizing sub-committees to ensure that monitoring activities are conducted in an efficient manner, to enforce better control and transparency, and to reduce information asymmetry.

Consistent with the concept of agency theory, prior studies have also documented that sub-committees play a key role in decisions relating to voluntary disclosure, with the audit committee, in particular, considered an important factor. Forker (1992) argues that the existence of audit committees improves internal control and leads to better disclosure in an examination of UK firms, reporting a positive but weak association between the existence of an audit committee and share-option disclosure. Consistent with this argument, Ho and Wong (2001) explore 98 Hong Kong firms and report that the existence of an audit committee had a significant positive relationship with voluntary disclosure. Barako et al. (2006b) finds support for this positive relationship based on a study of Kenyan firms. Consistent with such results, Arcay and Vazquez (2005) also report that the

existence of an audit committee is positively associated with the voluntary disclosure of a firm. Allegrini and Greco (2013) further argue that having sub-committees, including a nomination, audit and compensation committee, provides the opportunity to set strong internal controls and monitoring presence thereby ensuring that the interests of all stakeholders are considered. A positive relationship has been documented by O'Sullivan et al. (2008) based on a sample of Australian firms.

In the context of Bangladesh, there is no regulatory requirement to establish sub-committees, such as a nomination or remuneration committee. In the absence of these committees, the audit committee has been the primary focus of Bangladeshi studies. The 2006 guidelines[30] (p. 4) from the BSEC highlights the audit committee issue by stating that,

> The Audit Committee should assist the Board of Directors in ensuring that the financial statements reflect a true and fair view of the state of affairs of the company and in ensuring a good monitoring system within the business.

A further guideline was established regarding the formation of an audit committee in 2012 (Amendment to the Corporate Governance Guidelines). This guideline was developed by the BSEC. Consequently, a research agenda focusing on the audit committee has emerged. Rouf (2011) argues that firm monitoring is more effective with the existence of an audit committee. After examining 120 non-financial firms, this study provides evidence of a positive correlation with voluntary disclosure. Khan et al. (2013) further suggest that the existence of an audit committee is positively associated with corporate social disclosure.

Based on the above discussion it is argued that the presence of a sub-committee increases the monitoring capability and transparency of a firm. However, within Bangladesh, the relationship between sub-committees, particularly the nomination and remuneration committees, and voluntary disclosure, are not explored adequately. To fill this gap, this study considers the existence of two sub-committees and their respective impacts on voluntary disclosure.

[30] http://www.secbd.org/Order%20relating%20to%20Corporate%20Governance%20Guidelines-9%20Jan06.pdf Visited 2/06/2015 6.20PM

Therefore, considering limited documentation in the Bangladeshi context, hypothesis 1(d) is expressed as follows:

H1(d): *There is an association between the presence of sub-committees and voluntary disclosure.*

4.5.5 Audit Committee Composition

Audit committee composition refers to the proportion of independent directors present, as well as the gender and nationality of committee members. The proportion of independent directors on the board is considered to be the more important issue as prior studies demonstrate that their presence is a more effective mechanism for stimulating monitoring and internal control and subsequent voluntary disclosure of a firm (Fama & Jensen 1983; Madi et al. 2014)

Agency theory suggests that the establishment of an audit committee is a catalyst for a reduction in information asymmetry and opportunistic behaviour by managers, and also improves disclosure quality (Akhtaruddin & Haron 2010; Chung et al. 2004). Fama and Jensen (1983) further argue that the existence of independent directors facilitates the effective monitoring of management behaviour. Within contemporary corporate governance systems, it is expected that the function of audit committees is reinforced by the presence of independent directors (Haji 2015). Independent audit members are expected to be more effective as they are likely to be free from influence and pressure from management (Abbott et al. 2000; Jun Lin et al. 2008) as they do not have a conflict of interest.

In prior studies, the existence of an audit committee and its relationship with voluntary disclosure practices is widely explored (Alves et al. 2012; Arcay & Vazquez 2005; Barako et al. 2006b; Ho & Wong 2001). Other studies extend this understanding by considering the effects of audit committee composition on voluntary disclosure practices. Akhtaruddin and Haron (2010) report that having independent directors is positively associated with voluntary disclosure after examining 124 Malaysian firms for the year 2003. They argue that having independent directors on the audit committee helps to achieve an effective monitoring system and reduces agency problems, as well as opportunistic behaviours by owners. Consistent with this argument Madi et al. (2014) provide

evidence of a positive association between audit committee composition and voluntary disclosure after examining 146 Malaysian firms for the year 2009. Haji (2015) further supports the finding that audit committee composition has a positive relationship with voluntary disclosure.

However, Li et al. (2012) report no significant relationship between audit committee composition and intellectual capital disclosure after examining 100 listed firms on the London Stock Exchange for the year 2005. A similar insignificant relationship has been reported by Othman et al. (2014). They examine the top 100 Malaysian firms for the year 2011.

Within the context of Bangladesh, the relationship between audit committee composition and voluntary disclosure is not yet documented. It should be noted that a limited set of studies considers the effects of audit committee existence on disclosure (Khan et al. 2013; Muttakin et al. 2015; Rouf 2011) but audit committee composition has not been the focus of Bangladeshi studies. The BSEC emphasized audit committee composition in its 2012 corporate governance guidelines. Based on this, it could be argued that audit committee composition may play a vital role in improving firm transparency within the Bangladeshi context.

The limited studies above suggest that there may be a positive association between audit committee composition and voluntary disclosure. In particular, having independent directors may facilitate the reduction of information asymmetry and augment the monitoring system of a firm. However, within the Bangladeshi context, this relationship is not known yet.

Therefore, considering mixed findings in the literature and a lack of documentation within Bangladesh, this study forms the following hypothesis:

H1(e): *Audit committee composition is associated with voluntary disclosure.*

4.5.6 Foreign Ownership

Foreign ownership is the proportion of a firm owned by foreign investors. Regarding this form of ownership, firms have to emphasize effective communication with stakeholders to reduce information asymmetry as language might act as a barrier (Haniffa & Cooke 2002; Huafang & Jianguo 2007).

From the context of agency theory, Mangena and Tauringana (2007) and Young and Guenther (2003) argue that foreign investors require more information to have a better understanding of firm activities. Higher agency costs may therefore be expected as foreign ownership increases. To ensure transparency, more disclosure is required from the firms with foreign ownership.

Suchman (1995, p. 574) approaches this concept from the perspective of legitimacy theory, which he summarizes neatly as:

> Legitimacy is a 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.

Firms with foreign owners must pay extra attention to information asymmetry in an environment where language, values and norms differ between countries. Haniffa and Cooke (2005) reinforce this, suggesting that the existence of foreign investors may result in an increased legitimacy gap. As a result, a firm must use voluntary disclosure to legitimize operational activities, satisfy foreign investors and attract investment capital. Therefore, in line with agency and legitimacy theories, firms emphasize reducing information asymmetry and legitimizing operational activities.

Consistent with agency and legitimacy theories, a large number of prior studies argue that foreign ownership positively influences firms' voluntary disclosure policies. Haniffa and Cooke (2002) suggest foreign ownership is positively associated with voluntary disclosure and argue that the monitoring function is a pivotal reason for this focus. Barako et al. (2006a) report similarly and argue that, due to the geographical separation of owners and management, firm management might be motivated to disclose more information. Huafang and Jianguo (2007) use a data set of 599 Chinese firms to lend further weight to the positive association between voluntary disclosure and foreign ownership.

In contrast, Laidroo (2009) argues that firms with foreign investors are mainly controlled by foreign interests where local investors have less influence on firm decision making. As a result, there is a negative association between foreign ownership and voluntary disclosure as there is less incentive to maintain a positive reputation. Laidroo considers the years 2000 to 2005 for 52 firms from three European emerging capital markets in the Baltics – the Tallinn, Riga and Vilnius

Stock Exchanges. A negative relationship between foreign ownership and voluntary disclosure was reported.

Veronica and Bachtiar (2010) do not find any significant relationship between foreign ownership and voluntary disclosure after examining 87 listed firms on the Indonesian Stock Exchange for the year 2003. The design of this study may be the primary reason as the proportion of foreign investors may not have been enough to influence the results.

Within the context of Bangladesh, Khan et al. (2013) report a positive association between foreign ownership and social disclosure after examining 116 manufacturing firms from 2005 to 2009. They argue that firms are keen to satisfy foreign investors, thereby maintaining legitimacy by disclosing social issues. More recently, Muttakin et al. (2015) report a positive association between foreign ownership and intellectual capital disclosure with the argument that foreign investors are uncertain about emerging markets like Bangladesh. As a result, extra disclosure is demanded. This study considers 135 manufacturing firms from the years 2005 to 2009.

The above suggests that prior studies have contradictory findings, with one group of researchers arguing that foreign ownership stimulates firm monitoring and positively influences firm performance, while the other argues that foreign ownership has less influence and negatively influences voluntary disclosure.

Therefore, considering mixed findings in the literature, hypothesis 1(f) is as follows:

H1(f): *Foreign ownership is associated with voluntary disclosure.*

4.5.7 Director Ownership

Director ownership refers to the proportion of shares owned by the board of directors of a firm. The board of directors is closely associated with the formation of the firm's policies, and individuals on the board are collectively involved in developing the overall strategic vision of the firm. These individuals therefore play an important role in the controlling and decision-making processes of a firm (Eng & Mak 2003; Jensen & Meckling 1976; Khan et al. 2013).

In the context of agency theory, Jensen and Meckling (1976) argue that director ownership ensures that the interests of the directors and shareholders are aligned. Consistent with this view, it can be argued that due to director ownership a firm may promote transparency by considering additional information. Ideally, in an environment where shareholders voice concerns about social issues, this may contribute to the value of a firm. However, McConnell and Servaes (1990) argue that directors may use information asymmetries to maximize their own benefit instead of the best interests of the firm. For instance, directors have better access to internal information. As a result, opportunistic directors may limit available information to gain a benefit from ownership. Thus, director ownership may, in fact, reduce the amount of relevant voluntary disclosure offered to stakeholders.

Leung and Horwitz (2004) find a mixed relationship between board ownership and voluntary disclosure after studying 376 Hong Kong firms for the year 1996. They report that low director ownership (less than 25%) is positively associated with voluntary disclosure but that this relationship is negative when director ownership is higher (more than 25%). Other studies reported positive relationships between managerial ownership and voluntary disclosure After examining 100 Chinese firms, Li and Qi (2008) report a positive relationship. In addition, Jiang and Habib (2009) reveal a positive association after examining 467 samples in a longitudinal study for the period 2001 to 2005.

Other empirical studies support a negative relationship between director ownership and voluntary disclosure. Eng and Mak (2003), for instance, report a negative association between managerial ownership and voluntary disclosure, concluding that director ownership leads to agency conflicts and monitoring problems. Ghazali and Weetman (2006) also report a negative relationship after examining Malaysian listed firms for the year 2001. Mohd Ghazali (2007) further report on this negative association from a social disclosure perspective, finding that director ownership may lead to an agency problem. For instance, having director ownership means there is relatively low interest from outsiders. Accordingly, there is decreased firm accountability due to less pressure from external stakeholders. As a result, directors may not be motivated to incur extra costs for the outsider. Therefore, there is a negative relationship between director ownership and voluntary disclosure of a firm.

In contrast, Gul and Leung (2004), Huafang and Jianguo (2007), and Samaha et al. (2012) fail to find any relationship between director ownership (managerial) and voluntary disclosure after examining 385 Hong Kong, 559 Chinese and 100 Egyptian firms respectively.

In the Bangladeshi context, Khan et al. (2013) report a negative correlation between social disclosure and managerial ownership. They argue that this form of investor is more powerful compared to others and, thus, they ignore social accountability. In a further analysis, they find within export oriented firms that director ownership is positively associated with social disclosure. They argue that Western stakeholders may exert pressure on firms to consider social issues. While findings such as these present a reasonable base from which to develop further studies, it should be also noted that the relationship between director ownership and voluntary corporate disclosure has not been investigated widely within the context of Bangladesh. For instance, the relationship between director ownership and environmental and intellectual capital voluntary disclosure has not yet been examined.

The above discussion demonstrates that there are mixed findings regarding the relationship between director ownership and voluntary disclosure within the literature. Results from the Bangladeshi context are limited to those pertaining to social disclosure and there is no investigation that has delved into environmental or intellectual capital issues. The current research agenda represents a step towards filling this research gap. The following hypothesis, once tested, will provide evidence and contribute to a much richer understanding of corporate social disclosure in the Bangladeshi context.

Therefore, considering mixed findings in the literature and lack of documentation within Bangladesh, the hypothesis linking director ownership and voluntary disclosure is as follows:

H1(g): *Director ownership is associated with voluntary disclosure.*

4.5.8 Institutional Ownership

Institutional ownership refers to investors of a firm that are financial institutions including banks, corporations, mutual funds and superannuation funds (Farrar 2008). In regards to firm ownership structure, institutional ownership is considered to be an important factor as these investors have the capability and resources to access more information compared to smaller shareholders (Smith 1976). Furthermore, as professional investors, institutional shareholders are more suited to interpreting information because of their expertise in the field. Their combined voting power provides further privilege (Bos & Donker 2004; Chung et al. 2002; Donnelly & Mulcahy 2008). Therefore, institutional investors may demand detailed information and play an important role in the monitoring process of a firm as well as potentially contributing to the transparency of a firm's actions (Aggarwal et al. 2011; Barako et al. 2006a).

Based on the concept of agency theory, a firm's monitoring process is a significant factor in reducing agency–principal conflict (Jensen & Meckling 1976). Institutional owners play a significant role in the monitoring process and can potentially reduce monitoring costs because of their expertise, which can be applied in a scaled fashion. A corollary to this is that institutional investors may place greater emphasis on voluntary disclosure thereby reducing information asymmetries (Diamond & Verrecchia 1991; Haniffa & Cooke 2002).

Regarding social and environmental disclosure, Solomon and Solomon (2006) argue that active engagement and representation of institutional investors enhances corporate governance mechanisms and encourages the firm to focus on social, ethical and environmental areas. Boone and White (2015) support this view and claim that higher institutional ownership reduces information asymmetry, which reduces monitoring costs and the subsequent trading costs of a firm. Similarly, Barako et al. (2006a) assert a positive association after investigating 43 Kenyan firms from the years 1992 to 2001. This study presents the argument that institutional investors positively influence voluntary disclosure through their role as an effective monitor and through their expert and active engagement with firm governance. Similarly, Ntim et al. (2012) suggest a positive association after conducting research on 169 South African firms for the period 2002 to 2006.

Laidroo (2009) reports a positive relationship, arguing that institutional owners are more powerful and demand additional information when compared to other investors. Khlif et al. (2016) lend further strong support in favour of the positive association between institutional ownership and voluntary disclosure after reviewing 69 prior studies.

Conversely, institutional investors are often most concerned with maximizing short term financial returns and it could be argued that institutional investors are more likely to have direct access to the required information from a firm; thus firms may not emphasize voluntary disclosure. In addition, the expected return from institutional investors is not typically achieved or observable through the discharge of informal accountabilities such as those espoused by voluntary disclosure, hence this type of information is not the focus of institutional investors. Consistent with these arguments, Jiang and Habib (2009) report a negative relationship with voluntary disclosure.

In contrast, several studies report that there is no significant relationship between institutional ownership and voluntary disclosure. For example, Haniffa and Cooke (2002) and Donnelly and Mulcahy (2008) report an insignificant relationship after examining 167 Malaysian and 51 Irish firms respectively.

Within the context of Bangladesh, Farooque et al. (2007, p. 131) state that, "… the institutional setting for ownership structure in Bangladesh has unique features, an appreciation of which is important to understanding the governance mechanisms and processes that have evolved in Bangladesh". However, the relationship between institutional ownership and voluntary corporate disclosure has not been investigated widely. Institutional investor ownership and its relationship with other forms of voluntary disclosure, like environmental and intellectual capital disclosures, have not been explored. Regarding social disclosure, Rashid and Lodh (2008) considered 21 firms for the periods 2003–2004 and 2006–2007 and reported that there is no significant relationship between institutional ownership and social disclosure. They outline possible future research agendas and encourage further study for the post 2006 period. Despite these early and insightful attempts, contemporary analyses on this topic are lacking and the relationship between institutional ownership and corporate voluntary disclosure is not well documented.

Therefore, considering mixed findings in the literature and lack of documentation within Bangladesh, the present study considers the following hypothesis:

H1(h): *There is an association between institutional ownership and voluntary disclosure.*

4.6 Hypothesis: The Relationship between Voluntary Disclosure and Firm Performance (Effects)

Besides the relationship between corporate governance characteristics and voluntary disclosure, the research framework (Figure 4-2) also presents evidence from the literature (refer to Chapter Two) that voluntary disclosure of a firm may affect firm performance. Based on the concept of signalling theory, voluntary disclosure of a firm is a medium of communication and acts as a signal from a firm to stakeholders. Depending on the quality of the signal, a firm may reduce information asymmetry and establish effective communication. Accordingly, based on the nature of the signal (voluntary disclosure) there might be an impact on the operational cost and reputation of a firm (Anderson & Frankle 1980; Shane & Spicer 1983), which may subsequently affect firm performance. Legitimacy theory is also relevant here as voluntary disclosure reflects a firm's compliance with the social contract, including the norms and values of a firm. By considering voluntary disclosure, a firm may overtly display compliance with the social contract. Such compliance may create a positive image, which may add value to a firm, thereby positively affecting firm performance.

Within the literature, a significant number of studies has considered the above phenomenon. There have been mixed findings between countries and the time periods and methods adopted have varied quite significantly (Griffin & Mahon 1997; Margolis et al. 2009; Margolis & Walsh 2003; Molina-Azorín et al. 2009; Orlitzky et al. 2003; Wang et al. 2016). By reviewing prior studies concerning the effects of voluntary disclosure on firm performance, three types of effect are identified: positive, negative and neutral.

A large number of prior studies report that voluntary disclosure has a positive effect on firm performance and these positive findings are supported by

various arguments (Griffin & Mahon 1997; Margolis & Walsh 2003; Molina-Azorín et al. 2009; Orlitzky et al. 2003; Wang et al. 2016). For instance, it has been argued that, by considering voluntary disclosure, firms may receive a positive response regarding product or premium price (Bhattacharya & Sen 2003). Also, some studies find that by considering voluntary disclosure (intellectual capital), firms intend to convey good news, such as value-related information, to stakeholders and this may lead to an increase in market capitalization (Anam et al. 2011; Uyar & Kılıç 2012). This argument suggests that voluntary disclosure acts as a signal to convey good news to stakeholders. It is further argued that voluntary disclosure (social disclosure) can be leveraged as a strategic mechanism used to generate profit by complying with the expectations of different stakeholders, thereby adhering to social imperatives (Chen & Wang 2011; Cheng et al. 2016).

It is also reported that firms with objective or extensive voluntary disclosure are more likely to have lower financing costs (Aerts et al. 2008; Cormier & Magnan 2007), which may lead to better firm performance. Also, by disclosing voluntarily, firms may retain quality employees and increase productivity, which may lead to a reduction of costs (Cormier et al. 2011; Qiu et al. 2016; Siegel 2009). Voluntary disclosure may also facilitate the reduction of information asymmetries. In addition, voluntary disclosure is considered a potent rhetorical mechanism used to deflate public pressure within the social/political context and demonstrate compliance with social norms and values, (Gray et al. 1995; Patten 2002; Suchman 1995). Voluntary disclosure may therefore act as a signal, ensuring better communication between the firm and stakeholders (Lin et al. 2012). This signalling device may help a firm create a better image and/or reputation (Miles & Covin 2000) ultimately leading to better firm performance. A significant number of prior studies provide empirical evidence that supports this line of reasoning and shows that voluntary disclosure has a positive effect on firm performance (Abdolmohammadi 2005; Anam et al. 2011; Chen & Wang 2011; Cheng et al. 2016; Chi 2009; Choi et al. 2010; Garay et al. 2013; Khlif et al. 2015; Montabon et al. 2007; Prado-Lorenzo et al. 2008; Uyar & Kılıç 2012).

Although the majority of prior studies report the positive effects of voluntary disclosure on firm performance, a significant number of studies report a

negative effect (Griffin & Mahon 1997; Margolis & Walsh 2003; Molina-Azorín et al. 2009; Orlitzky et al. 2003; Wang et al. 2016). To explain these results, it has been argued that the shareholder may perceive financial performance as more important than voluntary disclosure and that too much emphasis on voluntary activities will reduce the profitability of the firm (Li et al. 2017; Lima Crisóstomo et al. 2011). It is also argued that voluntary disclosure is subject to extra costs that lead to reduction of the competitiveness of a firm as well as financial performance (Friedman 1970; Mathuva & Kiweu 2016). In addition, some stakeholders may ascribe little importance to social information; thus voluntary disclosure may have a negative influence on firm performance (Lima Crisóstomo et al. 2011) due to the extra costs involved. In line with these arguments various prior studies report that voluntary disclosure has a negative effect on the firm performance (Chen et al. 2016; Li et al. 2017; Lima Crisóstomo et al. 2011; Mathuva & Kiweu 2016).

Besides the positive and negative effects of voluntary disclosure on performance, it is also reported that there is no significant effect from voluntary disclosure to firm performance (Griffin & Mahon 1997; Margolis & Walsh 2003; Molina-Azorín et al. 2009; Orlitzky et al. 2003; Wang et al. 2016). For example, Aras et al. (2010) argue that voluntary disclosure is a broad issue and perhaps not sufficiently related to firm financial and economic performance from a developing country perspective. Cormier and Magnan (2007) report that voluntary disclosure has a significant effect on market value in Canada; however, there is no significant effect for Germany and France. To explain these results, authors have argued that due to a varied socio-economic context, the significance of disclosure might be different among users. It is further argued that investors may not rely on these disclosures to make a decision. In particular, investors might be more concerned with financial return than social information.

Very little investigation has taken place within the context of Bangladesh. Hossain et al. (2015) only investigate the effects of various categories of social disclosure on firm performance by considering three indicators: ROA, ROE and Tobin's Q. They report a significant positive effect on return on asset and return on equity, explaining that voluntary disclosure may act as a competitive advantage for firms. Whilst this study offers significant findings, there is a major limitation as the

data set (2008 to 2012) is located within the period of the 2010 share market collapse. As a result, the findings may be skewed. This type of study is rare in the Bangladeshi context and focused on social comparators. The impact of other forms of voluntary disclosure, that is, environmental and intellectual capital, on firm performance is also scarce.

Based on the above discussions, there are mixed finding regarding the effects of voluntary disclosure on firm performance. However, it is worthwhile noting that the majority of studies investigating the relationship between voluntary disclosure and firm performance report a positive effect. Very few studies focus on the Bangladeshi context. The present study attempts to address this gap by formulating hypotheses that have not yet been considered in the Bangladeshi context. The hypotheses are consistent with other models found in the literature and hypothesis two is developed as follows:

H2: Corporate voluntary disclosure is positively associated with firm performance.

Prior studies have considered several indicators of firm performance. The indicators of firm performance are categorized as accounting, marketing and mixed. It should be noted that a wide range of firm performance indicators considered in the literature are potential contributors to mixed results. For a broader understanding, this study considers indicators from each main category. Accordingly, the significant and widely used five indicators,[31] including Return on Asset, Return on Sales, Market Capitalization, Earning per Share and Tobin's Q, are considered for this study. Therefore, hypothesis two is sub-categorized into five sub-hypotheses as follows:

H2(a): Corporate voluntary disclosure is positively associated with return on asset

H2(b): Corporate voluntary disclosure is positively associated with return on sales

H2(c): Corporate voluntary disclosure is positively associated with market capitalization

H2(d): Corporate voluntary disclosure is positively associated with earnings per share

H2(e): Corporate voluntary disclosure is positively associated with Tobin's Q

[31] Further justification for considering these firm performance indicators are provided in Chapter five.

4.7 Summary and Conclusions

The purpose of this chapter was to explore the research setting, provide the research framework, and develop relevant hypotheses for this thesis. Consistent with the research agenda this chapter exposes the key issues and a general overview of Bangladesh, including historical, regulatory and environmental perspectives. The status of corporate voluntary disclosure reporting and the capital market in Bangladesh was also discussed. A brief review of corporate governance mechanisms in Bangladesh and their relationship with the regulatory structure was provided.

The research framework was informed by relevant models in similar research contexts found in the literature. The development of a detailed research framework was described, in particular, the way in which several significant characteristics of corporate governance including CEO duality, board size, board composition, sub-committee, audit committee independence, foreign ownership, director ownership and institutional ownership may be considered as potential determinants of voluntary disclosure. In addition, to explore the effect of voluntary disclosure, return on assets, return on sales, earnings per share, market capitalization and Tobin's Q were considered as indicators of firm performance. .

To explore the determinants of voluntary disclosure, hypotheses were developed by considering eight significant corporate governance characteristics. An additional hypothesis was also constructed to examine the effects of voluntary disclosure on firm performance, including five sub-hypotheses with relevant indicators of firm performance. The following chapter sheds light on the research design for this thesis. In particular, Chapter five will describe sample design, source of data, the measurement of the dependent, independent and control variables, research models and the statistical techniques employed to test the hypotheses articulated in this chapter.

Chapter Five: Research Methodology and Method

5.1 Introduction

This chapter outlines the research method selected to investigate the hypotheses developed in Chapter Four. The selection of an appropriate research approach (method) is essential to achieve reliable results (Kothari 2004). The significance of the research method is articulated by Kumar (2005, p. 41):

> An extremely important feature of research is the use of appropriate methods. Research involves systematic, controlled, valid and rigorous exploration and description of what is not known and establishment of associations and causation that permit the accurate prediction of outcomes under a given set of conditions.

The first requirement of a quantitative approach is to select an appropriate sample for the study. The top 200 firms (based on market capitalization) from Bangladesh provide the sample for this study since firms with higher market capitalization are considered more proactive in making voluntary disclosures (Abeysekera 2010; Mohd Ghazali 2007). Data is collected for three years (2011 to 2013) from the sampled firms for voluntary disclosure practices. The year 2011 was chosen because, after the Bangladesh share market collapse in 2010, significant changes were made, including the Dhaka stock exchange reformation and introduction of new guidelines to increase transparency. This study considers annual reports of firms to investigate voluntary disclosure as they are widely considered to be reliable (Abeysekera & Guthrie 2005; Botosan 1997; Khan et al. 2009). In addition, this study relies on a lag year of voluntary disclosure and collects data for firm performance from the years 2012 to 2014. The Bloomberg database is used to collect financial performance data as market-related information is not available in annual reports.

To quantify voluntary disclosure data, a voluntary disclosure index was constructed based on the disclosure items and rationales of pioneering studies. Consistent with the literature, unweighted content analyses of annual reports have been conducted to measure and quantify index items, eight significant corporate governance characteristics, and five widely used indicators of firm performance. In addition, consistent with the literature, Firm Size, Leverage, Industry and Current

Year Firm Performance are considered as control variables and act as moderating factors in this study

This study consists of two research models. Model One investigates the determinants of voluntary disclosure by considering voluntary disclosure as the dependent variable and corporate governance characteristics as the independent variables. Model Two investigates the effect of voluntary disclosure by considering voluntary disclosure as the independent variable and firm performance as the dependent variable.

To analyse the data, several statistical analyses are applied. *First,* descriptive statistics are conducted to find the mean, median and standard deviation of variables. *Second,* tests of error including normality, multicollinearity, heteroscedasticity and endogeneity are conducted as these are essential before proceeding with statistical analysis (Rashid 2015a). *Third,* panel data analysis by applying pooled ordinary least squares (OLS) regression is used to investigate the research questions. To confirm the results, two stage least squares (2SLS) regression is applied. *Finally,* to ensure robustness, two different tests have been considered for each research model: an additional endogeneity test, considering alternative measurement for corporate governance characteristics, by replacing the classification of voluntary disclosure with three special categories (social, environmental, intellectual capital).

The remainder of Chapter Five is organized in the following manner. Section 5.2 outlines the sample design, sources of data and collection process for this study. Section 5.3 elaborates on the voluntary disclosure measurement process. The measurement process of corporate governance characteristics is examined in Section 5.4. Section 5.5 presents the measurement process of firm performance variables. Section 5.6 presents the measurement process of the control variables for this study. Section 5.7 presents the research models for this study. Section 5.8 discusses the statistical analyses that are applied in this study. Finally, the conclusion of the chapter is provided in Section 5.9.

5.2 Sample Design and Sources of Data

According to Kothari (2004, p. 56), a "(r)esearcher must select/prepare a sample design which should be reliable and appropriate for his research study". Details of sampling design and sources of data for this study are outlined below.

5.2.1 Firm Selection

The reason for exploring the determinants and effects of voluntary disclosure for the top 200 listed firms (based on market capitalization at 31 December 2013) on the Dhaka Stock Exchange is that it is expected that the top firms voluntarily disclose financial and non-financial information proactively (Belal 2001). In addition, firms with higher marker capitalization are considered to have extra resources compared to other firms (Adams et al. 1998; Andrew et al. 1989) and this allows them to focus on voluntary disclosure. This is particularly relevant for firms in a developing country context. Furthermore, sampling based on the market capitalization approach is consistent with prior studies (Belal 2001; Guthrie & Parker 1990; Rashid & Lodh 2008).

Within the top 200 firms, there are a few sectors, including the bond, insurance and mutual funds sectors, which have significantly different reporting structures. Thus, the data (financial performance) may not be consistent with other sectors. As a result, the bond, insurance, and mutual funds sectors are excluded from this study, leaving 157 top firms (77% of total market equity and 67.0% of total sample). In addition, 23 firms have been omitted due to missing information. Therefore, the final sample consists of 134 firms (68% of total market equity and 45.0% of total sample). Sectorial sampling information along with sectorial disaggregation is shown in Table 5.1.

Table 5-1 Sectorial sample details

Sector	Total Firms	Firms within Top 200	Firms Included in Sample
Bank	30	30	30
Cement	7	7	6
Ceramic	5	3	3
Engineering	26	18	12
Food & Allied	17	9	8
Fuel & Power	15	13	12
IT	6	2	1
Miscellaneous	9	6	4
NBFI	23	22	19
Pharmaceutical	24	19	16
Service & Real Estate	3	3	3
Tannery	5	3	3
Telecommunication	2	2	2
Textile	31	18	13
Travel & Leisure	3	2	2
Bond	3	2	0
Insurance	46	31	0
Mutual Fund	41	10	0
Paper & Printing	1	0	0
Jute	3	0	0
Total	300	200*	134**

* (77% of Total Market Equity & 67% of Total Sample Size), ** (68% of Total Market Equity & 45% of Total Sample Size)

5.2.2 Year Selection

Within the Bangladeshi context, the years 2011 onwards are considered to be significant for two reasons. *First,* the BSEC suffered a severe stock market collapse due to a price bubble in 2010 (Barua et al. 2014). The stock market adjusted and returned to normal in 2011. As a result, considering data from 2011 onward avoids distortions from the share market collapse.

Second, following the share market collapse, the Bangladeshi government initiated reform of the SEC and introduced various guidelines to improve firm transparency.[32] It should also be noted that very few studies on voluntary disclosure have considered the years 2011 and onwards.

Finally, most prior studies within the Bangladeshi context are limited to a particular year (Belal 2000, 2001; Khan et al. 2009). However, studying multiple periods can produce stronger findings (Akhtaruddin & Haron 2010). To explore the effects of voluntary disclosure on firm performance, a lag year concept has been

[32] http://www.secbd.org/AR2010-2011English.pdf.P. 16

considered to avoid a causality problem between voluntary disclosure and firm performance (Chen & Wang 2011; Waddock & Graves 1997) as it could be argued that disclosure might not effect firm performance immediately. It should also be noted that consideration of a lag year for disclosure is consistent with the research design adopted in prior studies (Chen & Wang 2011; Cheng et al. 2016; Veronica & Bachtiar 2010). Therefore, to explore the effects of voluntary disclosure, firm performance data are collected from the years 2012 to 2014.

Based on the selected 134 firms, a final sample yielded 402 firm-year observations. The summary of the sampling years is presented in Table 5.2.

Table 5-2 Summary of sampling period

Variables	Period
Voluntary Disclosure	Data collection period 2011 to 2013.
Corporate Governance Characteristics	Data collection period 2011 to 2013.
Firm Performance as Effect	Data collection period 2012 to 2014.
Control Variables	Data collection period 2011 to 2013.

5.2.3 Sources of Data

This study relies on secondary data from two different sources including annual reports and information retrieved from the Bloomberg Database. In the following, sources are discussed along with justification for their use.

5.2.3.1 Annual Report as a Source of Data

This study considers annual reports as a source of voluntary disclosure. There are some significant reasons to consider the annual report as a source of data. *First,* the annual report is a common and trusted source of both financial and non-financial information from a firm (Botosan 1997) where significant issues and concerns are expressed comprehensively (Abeysekera & Guthrie 2005; Khan et al. 2009). *Second,* the annual report is readily available as a source of reliable information (Unerman 2000), both in hard copy and electronically. *Finally,* the measurement of voluntary disclosure in this study is achieved through content analysis. Voluntary disclosure that is published in other forms (i.e., web) is not helpful for content analysis as it is quite difficult to retrieve the publication date. Furthermore, online publications encompassing voluntary disclosures are not

commonly used within every sector in Bangladesh (Michelon & Parbonetti 2012; Rashid 2015a). Within the context of Bangladesh, annual reports are considered to be the most extensive and recognized document for a firm's communication on a regular basis (Belal 2000; Khan & Ali 2010; Khan et al. 2009).

Nonetheless, the annual report does not necessarily encompass all aspects of firm performance indicators and pertinent information on financial performance, for example, market-related indicators, in particular, may not be included.

5.2.3.2 Bloomberg Database as a Source of Data

The Bloomberg Database is used to gather firm performance data as it provides access to current and historical financial information, including accounting and market-based data for local and international firms.

5.3 Voluntary Disclosure

There are various ways to identify and measure a firm's voluntary disclosures. According to Hassan and Marston (2010, p. 9):

> ... we present measures of disclosure provided in prior studies classified into two approaches. The first approach includes proxies for disclosure, which are not directly based on examining the original disclosure vehicle(s). The second approach provides measures of disclosure obtained by inspecting the original disclosure vehicle(s).

The first approach does not assess the original disclosure and is dependent on the perceptions of an individual or group regarding the disclosure. A disclosure index is widely considered as appropriate within the literature (Cerf 1961; Guthrie et al. 2004; Haniffa & Cooke 2002; Khan et al. 2013; Lim et al. 2007; Marston & Shrives 1991; Muttakin et al. 2015). Moreover, Marston and Shrives (1991, p. 195) state:

> One research instrument that has been used in numerous publications is an index of disclosure of particular information in company reports. Such an index aims to show the level of disclosure in a set of company accounts.

Therefore, consistent with the literature, this study also considers a disclosure index as a measurement process of voluntary disclosure as discussed in the following section.

5.3.1 Voluntary Disclosure Index

Implementing the measurement of the level of disclosure is a scientific approach. To describe the disclosure index Coy et al. (1993,p. 122) states:

> A qualitative-based instrument designed to measure a series of items, which when aggregated, gives a surrogate score indicative of the level of disclosure in the specific context for which the index was devised.

Measuring disclosures by considering a disclosure index was first introduced by Cerf (1961). It should be noted that, for the construction of a voluntary disclosure index, no ingrained or agreed upon theoretical direction has been established, therefore, the development of a new index should be based on the objectives of a research problem (Artiach & Clarkson 2011; Samaha et al. 2015).

There are two different procedures for gathering items that comprise a voluntary disclosure index. One approach is to construct an entirely new index. The other approach is to develop an index in light of existing index items (used in prior studies) and possibly alter these based on methodological requirements and a particular research context (Vu 2012). Developing an index in light of an existing index is a procedure that is widely considered (Anam et al. 2011; Barako et al. 2006a, 2006b). On the other hand, development of an entirely new index can be risky in terms of the researcher's time constraints and may be subject to criticism. Therefore, this study employs and tailors an existing voluntary disclosure index that has been deemed to measure voluntary disclosure reliably (Abeysekera 2007; Belal et al. 2010; Clarkson et al. 2008; Hackston & Milne 1996; Haniffa & Cooke 2005; Kamal & Deegan 2013; Khan et al. 2013; Muttakin et al. 2015; Nurunnabi et al. 2011; Ullah et al. 2013).

In summary, voluntary disclosure of Bangladeshi firms sampled in this study is measured using a voluntary disclosure index. The measurement of voluntary disclosure is achieved by the following four steps. *First,* preliminary items for the voluntary disclosure index based on the existing literature are selected. *Second,* these initially selected items are reviewed and altered to ensure there is no ambiguity. *Third,* the score for the voluntary disclosure index is calculated. *Finally,* several tests to confirm the reliability and validity of the index are conducted and the construction of a voluntary disclosure index is completed. All four steps are discussed in the following sections.

5.3.2 Select Preliminary Items for Voluntary Disclosure Index

This study emphasizes important types of voluntary disclosure used in business enterprises and researched in the literature. Accordingly, social and environmental disclosures are considered important types of voluntary disclosure and it is well documented that firms utilize social and environmental disclosures to legitimize their operational activities (Meek et al. 1995). Gray et al. (2001, p. 330) also notes the significance of corporate social and environmental disclosure by stating that, "… a substantial body of literature from a wide spectrum of theoretical positions concludes that social and environmental disclosures are an important phenomenon employed by corporations for a variety purposes". Corporate social and environmental disclosures also carry extra significance as the local community, policymakers and various social and environmental organizations are important stakeholders and therefore require or desire this type of disclosure. In addition to the social and environmental features of voluntary disclosure, information related to the intellectual capital of a firm is also considered as vital. The intellectual capital of a firm is located in the firm's associations, structures and people, and adds value to the firm by creating and maintaining creativity, innovation, information technology, interpersonal activities and competitive advantage (Appuhami & Bhuyan 2015; Guthrie 2001). Intellectual capital also has the potential to enhance the efficiency of applied capital and labour (Petty & Guthrie 2000, p. 156). Information related to intellectual capital that is voluntarily disclosed is therefore considered to be similarly vital for assessing and evaluating the future prospects of a firm.

A firm may provide an extensive array of extra information from different aspects – social, environmental and intellectual – and communicate with a diverse range of users. The significance of these three types of voluntary disclosure has also been observed in prior studies. In particular, several meta-analyses have found that social, environmental and intellectual capital disclosures are the most significant and widely used voluntary disclosures (Garcia-Meca & Sánchez-Ballesta 2010; Samaha et al. 2015).

Therefore, this study gathers voluntary disclosure items from these three important types of voluntary disclosures. Items are collected based on previous

studies in the voluntary disclosure literature. Studies from the Bangladeshi context have been considered to ensure that disclosure items are relevant and applicable. Figure 5-1 presents the relevant studies that are considered for gathering social, environmental and intellectual capital disclosure items.

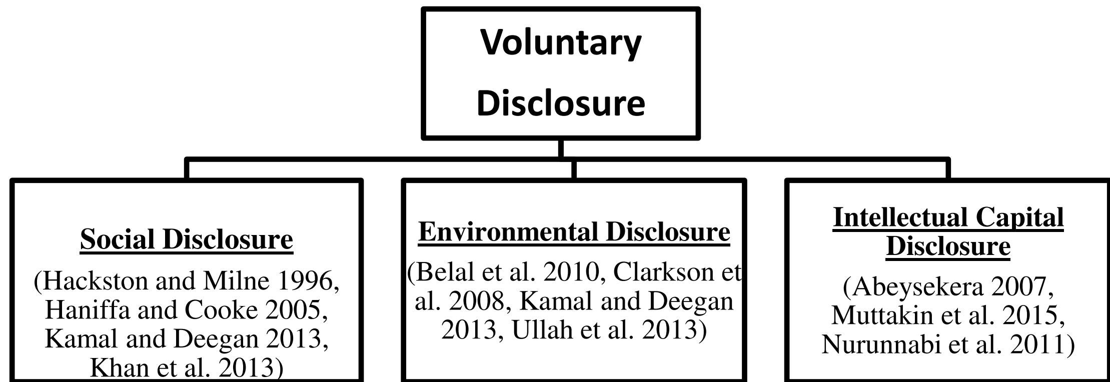

Figure 5-1 References for the Categories of voluntary disclosure

5.3.2 Review Selected Items for Voluntary Disclosure Index

After gathering various voluntary disclosure items from the selected prior studies, a total of 119 disclosure items has been selected. It should also be noted that prior studies have considered various sub-categories for social, environmental and intellectual capital disclosures. In particular, social, environmental and intellectual capital disclosures are sub-categorized into 8, 11 and 3 categories respectively. Figure 5-2 presents details of all the sub-categories.

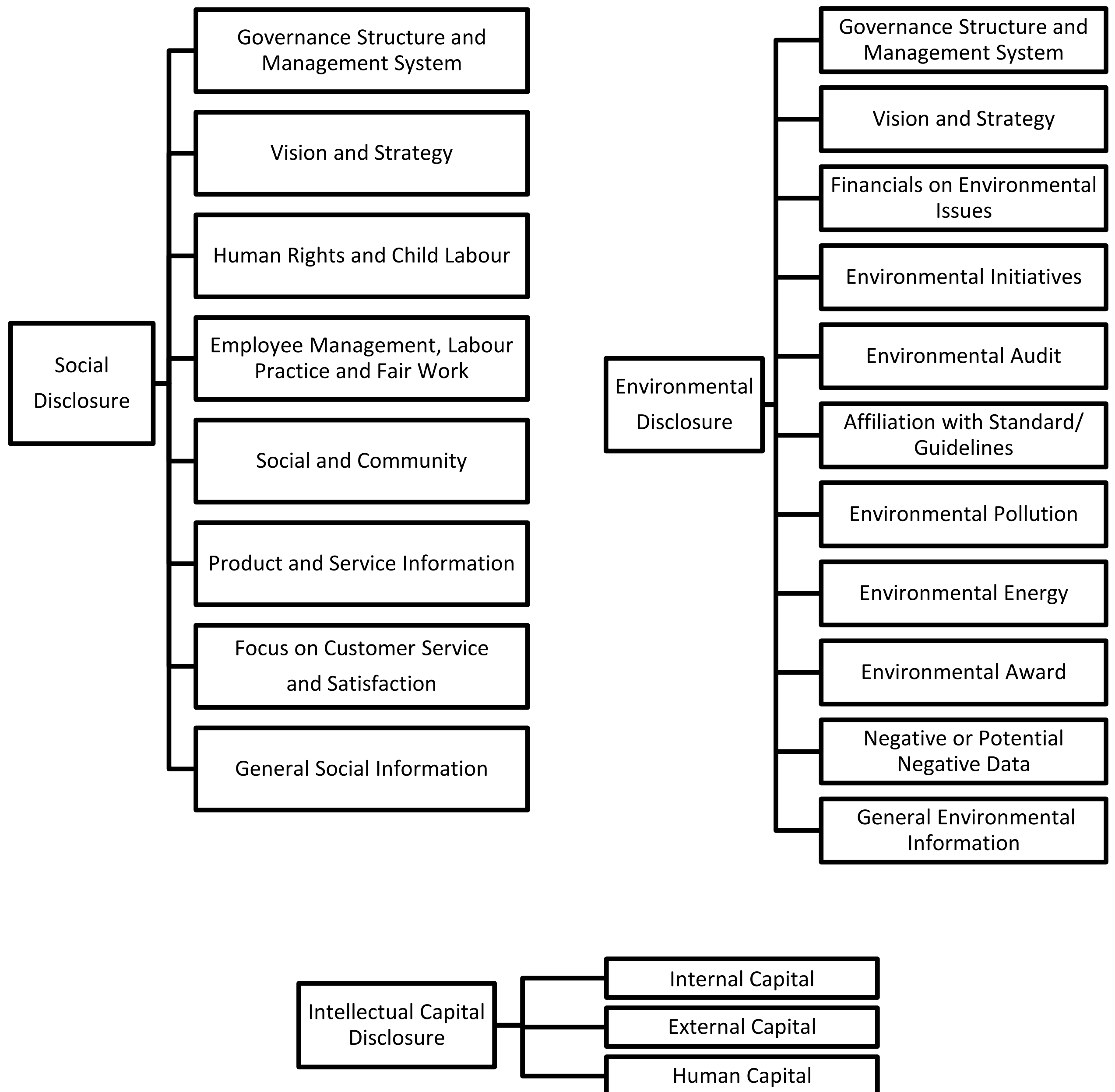

Figure 5-2 Categories of voluntary disclosure

Based on Figure 5-2, social and environmental disclosures are divided into a wide range of sub-categories. For instance, social and community, environmental audit, environmental initiatives, vision and strategy, and so on. These sub-categories focus on the nature of the disclosure only. However, social and environmental disclosure could be sub-categorized from the context of decision making as well. For instance, firm disclosures is an outcome of the strategic decision-making process, and such a concept might be applied for categorizing social and environmental disclosures. Accordingly, the main focus is placed on both

long and short term issues (Banks & Wheelwright 1979). In addition, Carroll (1991, p. 44) notes that, when considering social aspects, a firm must manage several stakeholders and make decisions in both long and short-term contexts. However, there might be some disclosures that may not fall within these two types but cover basic information or general comment. By considering the focus of the aforementioned decision-making process, a firm's social and environmental disclosures could be sub-categorized into three categories: strategic/long term focused disclosure, current/short-term focused disclosure and generic focused disclosure. Several insights and details of the sub-categorization are discussed in the following:

First, some disclosures emphasize the strategic agenda of a firm with a long-term focus. Such strategic disclosure may be considered as critical and requires in-depth attention from the firm's strategic decision makers. A large number of costs may also be involved. For instance, based on a firm's governance structure, its vision and strategy regarding social issues is considered to be the most critical component. Consequently, for a long-term focus, firms may have to redirect resources accordingly by deploying relevant staff members or employing experts in the field. Consideration of this type of disclosure may add value in the future and may not necessarily attract an immediate payoff. As a result, it could be argued that a firm considers such disclosures as a strategic response with a long-term focus. Social disclosures such as this, though arduous and potentially costly, represent an important legitimizing tool of business Summerhays and de Villiers (2012) have demonstrated that long-term disclosures, in this case environmental with aspirations of gaining social legitimacy, played a vital role for the six largest oil producers in the wake of the Gulf of Mexico oil spill of 2010. Their study noted that these companies focused on carefully planned, strategic and positive environmental responses to draw attention to their business cause while simultaneously avoiding litigation.

Second, other types of voluntary disclosure simply outlay the current status of social/environmental issues in the company or relay information on decisions regarding disclosures. Such actions may be considered as short-term strategic decision making. An example of this is reporting on the decision to donate in

response to a social or environmental event. Such disclosure is considered to be a short-term effort to attract customers or deflect criticism. A firm's involvement in society and local communities can be mediated. For example, firms are particularly aware of issues related to pollution that can affect their short-term profitability.

Finally, besides specific strategic/long term and current/short-term strategies relating to social and environmental issues, there are other types of disclosures that limit social and environmental concerns by expressing a general or moral initiative. This type of disclosure practice could be seen as isolated, require little or no significant investment or initiative, for example, if a firm makes a moral statement or a statement for public awareness. However, it might still convey a positive impression of the firm to stakeholders. The concept of general disclosure is also argued by De Villiers and Van Staden (2006) for environmental disclosures. Therefore, in line with the strategic context of a firm, the final category of social and environmental disclosures is termed generic disclosure.

In light of the above, this thesis has extended sub-categories in relation to voluntary disclosure and strategic management: long-term, short-term, and generic voluntary disclosure (See Figures 5-3 & 5-4).

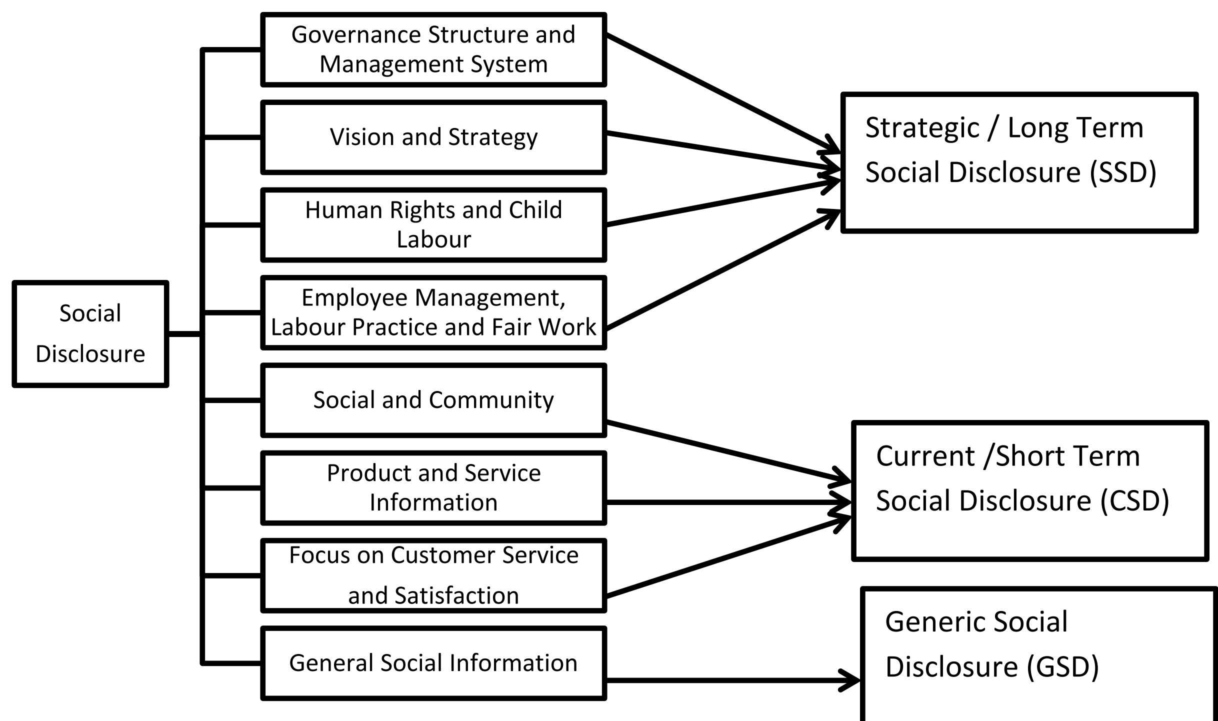

Figure 5-3 Categories of social disclosure

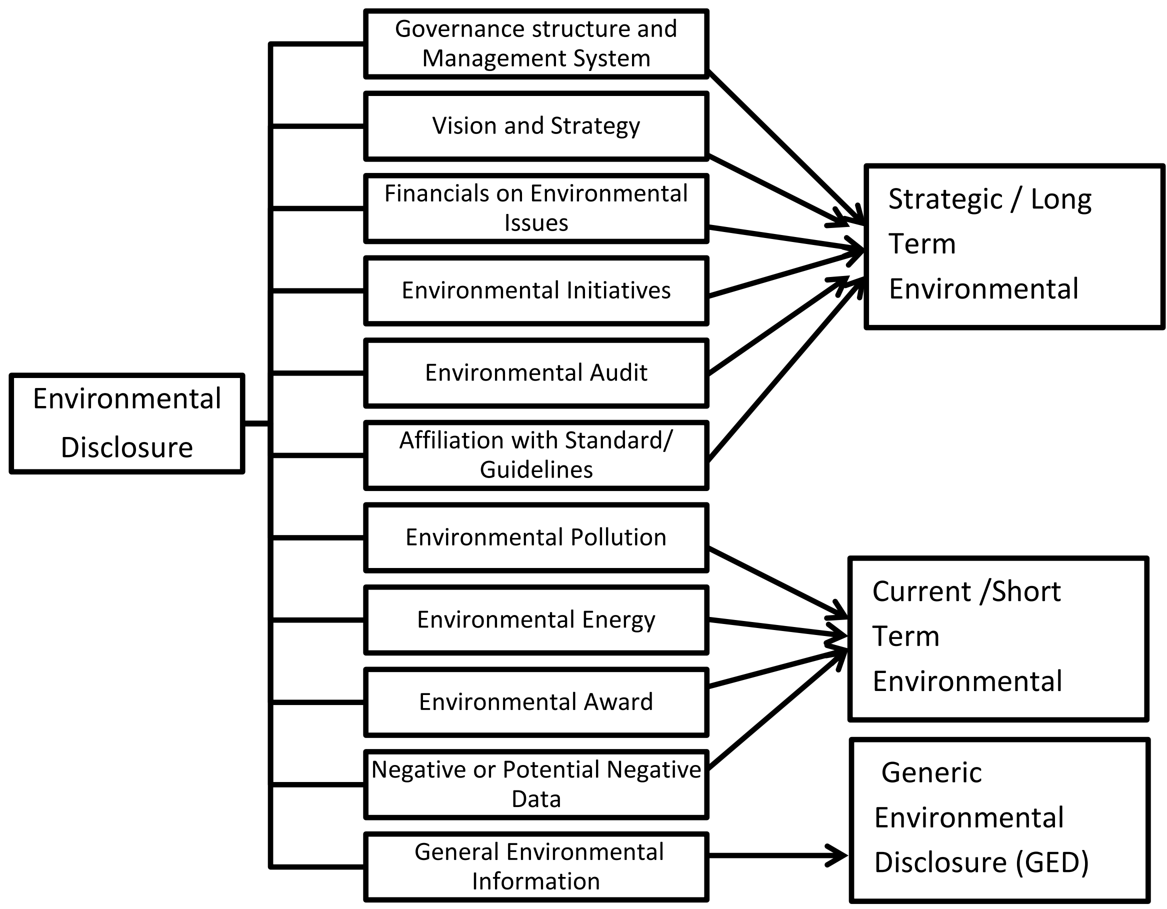

Figure 5-4 Categories of environmental disclosure

Intellectual capital disclosure is not sub-categorized based on the concept of strategic decision making. Intellectual capital of a firm exists within activities such as value adding, human structure, relationships in developing and maintaining creativity, innovation, information technology, interpersonal activities, and competitive advantage (Appuhami & Bhuyan 2015; De Santis & Giuliani 2013). As a result, internal, external and human capital might add value to the firm. Accordingly, there is scope to consider any capital from a generic perspective. Therefore, the sub-categorization of intellectual capital disclosures for this study is consistent with prior studies (Abeysekera 2007; Muttakin et al. 2015; Nurunnabi et al. 2011).

Initially, 119 voluntary disclosure items have been identified. A further review identifies three important constraints for the voluntary disclosure items. *First,* some of the disclosure items might be considered in the context of mandatory disclosure policies. Items that appear in the mandatory requirements are excluded

as this study particularly focuses on voluntary disclosure with regards to legitimacy (social contract), signalling (decision usefulness) and agent–principal relationships. *Second,* items in the various sub-categories should not be duplicated. A further check is performed to ensure this does not happen. *Finally,* all items are assessed and evaluated within the context of Bangladesh. For instance, the items are based on those used within a Western country context and there might be some items that are not applicable to Bangladesh. To avoid these pitfalls, all the items have been reviewed to confirm that they are applicable to the research context.

A final list of 80 items is considered including 30 social, 28 environmental and 22 intellectual capital disclosure items. Table 5.3 provides a summary of voluntary disclosure items; detailed lists of all the voluntary disclosure items are shown in Appendix E.

Table 5-3 Summary of voluntary disclosure index category

Disclosure Name	Sub-category	Number of items
Social Disclosure (Total 30 items)	Strategic or long-term social disclosure	19
	Current or short –term social disclosure	9
	Generic social disclosure	2
Environmental Disclosure (Total 28 items)	Strategic or long-term environmental disclosure	13
	Current or short-term environmental disclosure	12
	Generic environmental disclosure	3
Intellectual Capital Disclosure (Total 22 items)	Internal capital disclosure	5
	External capital disclosure	9
	Human capital disclosure	8
Voluntary Disclosure	Social + environmental+ intellectual capital disclosure	80

5.3.3 Calculating Scores for the Voluntary Disclosure Index

Content analysis is "… a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use" Krippendorff (2004, p. 18). In other words, content analysis is a technique of data collection and analysis that codes information into several groups and makes cogent and relevant inferences regarding those groups.

Within the context of voluntary disclosure, several calculation techniques of content analysis have been employed to transform language used in annual reports into quantitatively analyzable numbers. Word counting (Deegan & Gordon

1996; Haniffa & Cooke 2005; Haniffa & Cooke 2002; Rashid & Lodh 2008), counting the number of sentences (Cerbioni & Parbonetti 2007; Deegan et al. 2000; Hackston & Milne 1996) and calculation of the percentage of pages or number of sentences covering relevant information (Adams et al. 1998; Belal 2000; Unerman 2000) are examples of this technique. Within the various counting approaches, the nomination of only one approach to abstract the 'unit of analysis' is a difficult process (Gray et al. 1995). For example, the main obstacle to using a coding method based on the proportion of page, or number of words or sentences is the varying formats of annual reports from firm to firm. There are many variations in regards to font style, size, expression and syntax. In addition, the page size of the annual report varies from firm to firm. It is also important to mention that the coding method by proportion of page, or number of words or sentences is not helpful for understanding the meaning of the disclosure. Thus, from the unit of analysis aspect, proportion of page, or counting words or sentences may not be adequate for capturing the appropriate information.

The focus on a particular word may also be an inadequate abstraction as the precise meaning of the disclosure may not be revealed. To resolve this issue, Unerman (2000) asserts that, after finding a word, focusing on the whole sentence to understand its meaning may be a necessary step to appropriately interpret the information and subsequently categorize data correctly. This reduces the chance of including data that does not accurately reflect the intended meaning, thereby giving us a more robust method of analysis (Hackston & Milne 1996; Milne & Adler 1999). This study utilizes this approach and explores voluntary disclosure by focusing on both the words that are listed in the index and the whole sentence surrounding that word to understand the disclosure context.

After finding the disclosure item, the allocation of a score is required for the voluntary disclosure index. There are two techniques for allocating scores: weighted and unweighted. The weighted method assigns a score to every disclosure item from a range (e.g., 1 to 5) after assessing the significance of the disclosure item. In contrast, unweighted disclosure considers every disclosure item to be equally significant and allocates the same value. The unweighted approach has been widely used in prior studies (Khan et al. 2013; Khan 2010; Muttakin & Khan 2014)

and is deemed to be preferable to the weighted index (Lim et al. 2007). In particular, there are some distinct features of an unweighted index that make it superior. The unweighted approach is appropriate for all user groups (Cooke 1989) as the weighted index is generated by various users and may reflect the bias of a specific group (Marston & Shrives 1991). A weighted technique is more appropriate if the research emphasizes particular users of voluntary disclosures instead of diversified users. A potential scoring bias and scaling problems may also results in a misleading perception (Chow & Wong-Boren 1987) and firms better at disclosing significant items are also better at disclosing less significant items (Meek et al. 1995). Advocating an unweighted index, Cooke (1989, p. 182) argues;

> [t]he additive model used here is unweighted. The implied assumption is that each item of disclosure is equally important. Clearly one class of user will attach different weights to an item of disclosure than another class of user. However, the focus of this research is not on one particular user group but rather all users of corporate annual reports. An approach which tried to encapsulate the subjective weights of a multitude of user groups would be unwieldy and probably futile.

Since the research context of this thesis is not limited to a particular group, every disclosure item is regarded as equally important; prior studies on voluntary disclosure that employ both weighted and unweighted approaches find no notable difference between the two approaches (Barako 2004; Chow & Wong-Boren 1987). Based on the preceding discussions, the benefits of the unweighted approach were greater than the benefits of the weighted approach for the research context of this thesis. Therefore, unweighted is more appropriate for this research and has been adopted for measuring voluntary disclosure index. For example, '1' is awarded for disclosing one item, otherwise '0'. Accordingly, a firm is awarded based on total number of disclosure while the maximum possible score is 80 as there are 80 disclosure items.

Some disclosure items may not be applicable for every sector and this may also distort the score for the voluntary disclosure index. This complication is more relevant for environmental disclosures. For example, the scope of the environmental disclosure may not be same for the service and manufacturing industries and in the service and leisure sector no significant environmental impact based on their operations occurs, therefore, this sector may come with minimal

disclosures. To resolve this potential problem, this study omits irrelevant items for a particular firm (sector) and deems them to be 'Not Applicable'. The voluntary disclosure index (VDI) is calculated by considering the proportion of disclosures made by the firm and maximum possible score for that firm. Accordingly, the measurement of voluntary disclosure is based on the following formula,

$$VDI_t = \frac{\sum_{i=1}^{n} SDI_{it} + EDI_{it} + ICDI_{it}}{N_i}$$

Where,
VDI_t = Voluntary Disclosure Index of ith firm categories,.
SDI_{it} = Sum of the total number of points awarded for social disclosure to the firm i.
EDI_{it} = Sum of the total number of points awarded for environmental disclosure to the firm i,
$ICDI_{it}$ =Sum of the total number of points awarded for intellectual capital disclosures to the firm i,
N_i = the maximum number of items which the firm is expected to disclosure. For instance, $N \leq 80$

5.3.4 Reliability and Validity Test of the Voluntary Disclosure Index

Personal judgment is required to create a voluntary disclosure index. The subjectivity involved in the method is considered a major limitation of content analysis (Allegrini & Greco 2013; Healy & Palepu 2001). However, this limitation is overcome through rigorous and careful assessment. Several in-depth assessments of the disclosure index are found in prior studies (e.g., Botosan 1997; Cheng & Courtenay 2006). Assessments of reliability, defined as a reasonable quantitative abstraction of reality, and validity of the index are both important (Allegrini & Greco 2013; Saunders 2011).

Reliability of the measurement index implies that results can be reproduced in a consistent manner. Marston and Shrives (1991, p. 197) assert that

> [t]he index scores awarded to companies can be considered to be reliable if the results can be replicated by another researcher. Since the scores are extracted from printed annual reports which remain constant over time there is no obstacle to repetition.

There are three common ways to achieve this, including inter-coder reliability, test–retest and assessment of internal consistency (Hassan & Marston 2010). These common procedures for assessing reliability are discussed below.

In cases where there is a single coder, inter-coding reliability is ensured if the disclosure items are well explained and the decision of the coder is made after a sufficient period of training (Guthrie et al. 2003; Guthrie et al. 2004; Milne & Adler 1999). This study uses disclosure items tested in previous studies along with precise sub-categories and the coder has undergone continuous training with an expert supervisor over an extended period.

Assessing reliability by applying the test–retest approach is implemented by following several steps. *First,* the whole annual report was read and understood before initiating the coding process. This is a necessary step to ensure that the coder has an adequate understanding and knowledge about the disclosure of the annual report. This approach further facilitates identification of the applicable and non-applicable items in the annual reports (Omar & Simon 2011). *Second,* the coding for the entire sample has been completed by spending around six months investigating the data. This is a sufficient amount of time to deem the coding process reliable, assuming the researcher is well trained. *Finally,* a random sample of several firms has been coded again to compare with the previous score. Since, the results from the random check aligned with the initial coding, the test–retest process supports the conclusion that the voluntary disclosure index measurement is reliable.

Assessing reliability by examining internal consistency among the disclosure items has been implemented through the statistical approach of Cronbach's alpha. Cronbach's coefficient alpha (Cronbach 1951) has been widely used in prior voluntary disclosure studies to assess the reliability of the constructed voluntary disclosure index (Allegrini & Greco 2013; Bontis et al. 2007; Botosan 1997). In particular, Cronbach's alpha assesses whether various categories of the measurement complement each other to ensure the reliability of the measurement (Hassan and Marston 2010). Cronbach's alpha expresses a value between 0 to 1, and an alpha value over .80 confirms internal consistency for the measurement (Allegrini & Greco 2013; Field 2005). Accordingly, this study considers Cronbach's alpha tests to assess internal consistency as a part of reliability for the constructed index. This study explored the Cronbach's alpha for three broad categories of voluntary disclosure, and the result is demonstrated in Table 5.4

Table 5-4 Summary of Cronbach's alpha test for main categories

Disclosure Name	Number of items	Cronbach's alpha	Cronbach's alpha (if item deleted)
Social Disclosure	30	0.904	0.810
Environmental Disclosure	28		0.889
Intellectual Capital Disclosure	22		0.886

From Table 5.4, Cronbach's alpha value 0.904 demonstrates that the reliability of this index is strong (Allegrini & Greco 2013; Botosan 1997; Field 2005; Gul & Leung 2004; Khan et al. 2013). To ensure further assurance of internal consistency, three sub-categories of each of the main categories are also assessed. Cronbach's alpha 0.882, along with a higher value 'Cronbach's alpha if item deleted', for each sub-category supports the conclusion that every aspect of this voluntary disclosure index is reliable (see Table 5.5).

Table 5-5 Summary of Cronbach's alpha test for voluntary disclosure categories

Disclosure Name	Disclosure sub-category	Number of items	Cronbach's alpha	Cronbach's alpha (if item deleted)
Social Disclosure	Strategic or long-term Social	19	0.882	0.873
	Current or short-term Social	9		0.857
	Generic Social	2		0.871
Environmental Disclosure	Strategic or long-term Environmental	13		0.885
	Current or short-term Environmental	12		0.871
	Generic Environmental	3		0.859
Intellectual Capital Disclosure	Internal Capital	5		0.872
	External Capital	9		0.867
	Human Capital	8		0.860

Based on the results, it is concluded that all the necessary requirements for a reliable disclosure index have been satisfied. Accordingly, the measurement of a voluntary disclosure index in this study is deemed reliable and operable.

Ensuring the validly of a disclosure index is another important factor. Saunders et al. (2007) p. 614) defines validity as: "the extent to which data collection methods accurately measure what they were intended to measure". In other words, the validity of an index can be established when the purpose of the study is reflected accurately within the index (Marston & Shrives 1991; Omar & Simon 2011). Marston and Shrives (1991, p. 198) recommend that an index could

be considered valid if the index scores "mean what the researchers intended. That is to say, do the index scores have any meaning as a measure of information disclosure?" Accordingly, the collection of accurate data that aligns with the research objective is considered a major contributor to validity.

There are significant reasons to ensure that the constructed voluntary disclosure index is valid. *First*, all the disclosure items are based on established prior studies with an extensive focus on voluntary disclosure and within a Bangladeshi context (Abeysekera 2007; Belal et al. 2010; Clarkson et al. 2008; Hackston & Milne 1996; Khan et al. 2013; Muttakin et al. 2015; Saunders 2011). *Second,* the construction of the disclosure index was completed under the supervision and guidance of the research supervisors. *Finally,* validity of the voluntary disclosure index is further enhanced by presenting the first draft of the index at doctoral conferences.[33]

5.4. Corporate Governance Variables

To explore the determinants of voluntary disclosure, it is important to consider factors that are associated with the decision, capacity and control processes of a firm as this type of disclosure is not enforced by law. Within the literature, the determinants of voluntary disclosure have been categorized into two branches: corporate governance and firm characteristics.

Corporate governance is extensively emphasized as it plays a significant role in the operational, control and decision-making processes of a firm (Dalton et al. 1998). Weimer and Pape (1999, p. 152) articulate, the concept of corporate governance as a "[…] framework of legal, institutional and cultural factors shaping the patterns of influence that stakeholders exert on managerial decision-making". Accordingly, corporate governance may play a significant role in disclosure decisions of a firm (Ho & Wong 2001).

The significance of corporate governance is also observable in the voluntary disclosure literature as a significant number of studies also considered

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[33] Bhuyan, M 2016, 'Determinants and Effects of Voluntary Disclosure – Corporate Governance and Firm Performance: Evidence from Bangladesh', in *Faculty of Business, Higher Degree Research Student Conference*, University of Wollongong, Wollongong, 15-16 September.
From the conference the researcher benefitted from feedback from academics and experienced researchers

corporate governance as an important determinant. Emphasis is placed on the specific features of corporate governance including board structure, committees and ownership structure (Garcia-Meca & Sánchez-Ballesta 2010; Samaha et al. 2015). It should also be noted that these three features play a crucial role in a firm's decision making and monitoring. Therefore, this study considers these aspects of corporate governance as potential explanatory factors for voluntary disclosure.

Board structure of a firm is considered an important factor in corporate governance structure as it is the centre of decision-making processes in relation to monitoring, controlling and directing a firm to achieve its goals (Dalton et al. 1998; Dalton et al. 1999; Garcia-Meca & Sánchez-Ballesta 2010; Khlif & Souissi 2010; Samaha et al. 2015). Board structure is also considered as a core concept of reducing agency conflict, information asymmetry and promoting transparency within the firm. Within the literature, some features of the board have been widely considered as an explanatory factor for voluntary disclosure; in particular, CEO duality (Allegrini & Greco 2013; Hidalgo et al. 2011), board size (Abeysekera 2010; Akhtaruddin et al. 2009; Hidalgo et al. 2011) and board composition (Cheng & Courtenay 2006; Donnelly & Mulcahy 2008; Eng & Mak 2003).

The existence of a committee, or the particular features thereof, are considered as a significant factor for monitoring, controlling and compilation of statutory factors within the firm, as well as ensuring transparency (Allegrini & Greco 2013; Haji 2015). Various studies identify that committee features act as an explanatory factor for voluntary disclosure, in particular, the existence of a sub-committee (Cerbioni & Parbonetti 2007) and audit committee composition (Akhtaruddin & Haron 2010; Li et al. 2012; Othman et al. 2014).

Besides the above features, the ownership structure of a firm is also necessary to formulate and implement the vision and strategy of the business and align with the preference of stakeholders. Effective communication of these factors contributes to legitimacy and accountability in relation to decision making. Ownership structure is also relevant because the interests of investors may vary; thus investors' preferences are not necessarily the same. Within the literature, ownership structure has been extensively considered as an explanatory factor for voluntary disclosure, in particular, foreign ownership (Haniffa & Cooke 2005;

Huafang & Jianguo 2007), director ownership (Ghazali & Weetman 2006; Mohd Ghazali 2007) and institutional ownership (Barako et al. 2006a; Ntim et al. 2012).

In light of the above discussions, and consistent with prior studies, eight characteristics of corporate governance are deemed important and likely to have an impact on voluntary disclosure. Consequently, CEO Duality, Board Size, Board Composition, Sub-committee, Audit Committee Composition, Foreign Ownership, Director Ownership and Institutional Ownership are considered. The detailed measurement of each corporate characteristic is discussed below.

5.4.1 CEO Duality

CEO duality refers to the dual leadership structure of a firm. Especially it relates to the arrangement by which the CEO acts both as the CEO of the firm and as chairperson of the board of directors (Rechner & Dalton 1991). Various studies have considered CEO Duality as a determinant of voluntary disclosure within the literature (Barako et al. 2006a; Huafang & Jianguo 2007; Khan et al. 2013). Throughout these studies, a consistent measurement process involving a dummy variable is used to measure CEO duality, that is 1 is awarded if the CEO is also the chairman of the board, otherwise 0. Consistent with prior studies, CEO duality is measured by using a dummy variable (Barako et al. 2006a; Huafang & Jianguo 2007; Khan et al. 2013).

5.4.2 Board Size

Board size refers to the number of members on the board of directors of a firm. In the literature, board size is considered to be an influential factor for voluntary disclosure (Samaha et al. 2015) but the findings are contradictory. Board size is mostly measured as a sum of board members (Abeysekera 2010; Barako et al. 2006a; Esa & Anum Mohd Ghazali 2012; Hidalgo et al. 2011) but some studies consider the logarithm of the total number of board members to derive relevant findings (Carter et al. 2003). The second approach is more pragmatic as the number of board members varies from company to company and use of a log may reduce heteroscedasticity[34] (Brooks 2014). It also facilitates the validity of a variable

[34] Heteroscedasticity is a statistical issue, the details of which are discussed in 4.8.1.3.

measurement. Therefore, consistent with the literature, board size is measured as the logarithm of the total number of board members (Carter et al. 2003).

5.4.3 Board Composition

Board composition refers to the make-up or characteristics of directors regarding responsibilities, independence, race, gender and so on. Among these, the presence of independent directors is considered as the most pivotal factor. Independent directors have the ability to maintain objectivity because they have less incentive to act in their own interests. Because they are divorced from the financial performance goals of a firm they are better able to contribute to the monitoring and decision-making processes (Cheng & Courtenay 2006; Fama 1980). Accordingly, in the literature, board composition is widely measured as the proportion of independent directors and considered to be significant for firm monitoring and control, and an important factor for voluntary disclosure (Eng & Mak 2003; Ho & Wong 2001; Khan et al. 2013). Consistent with the literature, this study measures board composition as the proportion of independent directors.

5.4.4 Sub-committee

The sub-committee variable encompasses the presence of the various committees to review and implement board decisions of a firm in an efficient manner. The existence of sub-committees (i.e., Nomination Committee and Audit Committee) may facilitate the controlling function by presiding over important tasks (Fama & Jensen 1983). Vafeas (1999, p. 220) describes this function by focusing on the role of the nomination committee:

> The nominating committee can influence, however, the independence of outsider directors since, given the number of outsiders, the committee influences the degree of independence among those by selecting fewer `grey' directors. This evidence is partly consistent with better boards forming nominating committees or, alternatively, with the use of nominating committees improving board quality.

The audit committee is another example of a sub-committee that performs a vital corporate governance role. Its monitoring function can prevent serious commercial malfeasance by ensuring companies adhere to regulatory requirements and corporate imperatives, such as voluntary disclosure (Appuhami & Tashakor 2017; Karamanou & Vafeas 2005; Kolk & Pinkse 2010). Consequently, the presence of

sub-committees, such as the nomination and audit committee, is a significant contributor to sound corporate governance practices and is therefore considered as a relevant variable for this study. A range of prior studies confirm that the presence of a sub-committee can shape voluntary disclosure (Allegrini & Greco 2013; Cerbioni & Parbonetti 2007; Karamanou & Vafeas 2005). Consistent with these studies, this study measures sub-committees by considering a dummy variable (1 is awarded if a firm has both Nomination and Audit Committee, otherwise 0.)

5.4.5 Audit Committee Composition

Audit committee composition can be measured by focusing on particular features, including race, gender, background, role, independence and so on. Among these, the independence of audit committee members is considered to be one of the most significant factors as it influences the monitoring function. The independence of members is an important factor to ensure active monitoring and it has also been noted that it is an explanatory factor for the inclusion of voluntary disclosure (Madi et al. 2014; Othman et al. 2014). Consistent with prior studies, this study uses the proportion of independent directors within the audit committee as the relevant variable (Akhtaruddin & Haron 2010; Li et al. 2012).

5.4.6 Foreign Ownership

Foreign ownership refers to the proportion of shares owned by foreigners. Foreign ownership may shape the decision to voluntarily disclose as transparency and compliance with international standards is expected under such conditions. It has been reported that foreign owners might be sufficiently dominant to moderate the monitoring, controlling and decision-making process of a firm (Barako et al. 2006a; Haniffa & Cooke 2002) especially within Bangladesh as foreign owners are considered a powerful group (Islam & Deegan 2008). In line with such arguments, a large number of prior studies claim that the proportion of foreign ownership may moderate the voluntary disclosure practices of a firm (Barako et al. 2006a; Belal & Owen 2007; Haniffa & Cooke 2002; Islam & Deegan 2008; Khan et al. 2013). Consistent with prior studies, this study also measures foreign ownership as the percentage of shares owned by foreigners.

5.4.7 Director Ownership

Director ownership refers to the proportion of shares owned by the firm's directors. Due to director ownership, an agency conflict issue may mean that monitoring activity will not be performed appropriately (Jensen & Meckling 1976; McConnell & Servaes 1990). Accordingly, directors may negatively influence the transparency of a firm's activities since they gain access to firm information. In line with this argument, a large number of prior studies claim that the proportion of director ownership may moderate the voluntary disclosure practices of a firm (Donnelly & Mulcahy 2008; Eng & Mak 2003; Khan et al. 2013; Mohd Ghazali 2007). Consistent with prior studies, this study also measures director ownership as percentage of shares owned by the directors.

5.4.8 Institutional Ownership

Institutional ownership refers to the proportion of shares owned by institutional investors. Among the diverse range of owners, this group of investors is considered more professional with greater expertise on matters that may influence firm disclosure and performance. Their expertise means that these investors are privileged regarding corporate governance operations, including monitoring, firm management and decision-making processes (Donnelly & Mulcahy 2008; Hope 2013). In light of these arguments, a large number of prior studies claim that the proportion of institutional ownership may moderate the voluntary disclosure practices of a firm (Donnelly & Mulcahy 2008; Khlif et al. 2016; Laidroo 2009; Rashid & Lodh 2008). Consistent with prior studies, this study also measures institutional ownership as a percentage of shares owned by institutions.

5.4.9 Summary of Corporate Governance Characteristics Measurement

The above discussion has demonstrated the relevance of certain corporate governance variables and the various relationships pertaining to voluntary disclosure and firm performance. The list of variables, measurement processes and relevant prior research in relation to corporate governance characteristics is presented in Table 5.6.

Table 5-6 List of corporate governance variables and measurement process

Variable	Measurement	References
CEO Duality (CD)	Dummy variable (value 1 = CEO and Chairman, value 0 = otherwise)	(Barako et al. 2006a; Huafang & Jianguo 2007; Khan et al. 2013)
Board Size (BS)	Logarithm of total number of directors on the board	(Carter et al. 2003)
Board Composition (BC)	Percentage of independent directors within total number of directors on the board.	(Eng & Mak 2003; Ho & Wong 2001; Khan et al. 2013)
Sub-committee (SCOM)	Dummy variable by awarding 1 for Existence of a Nomination and Audit committee, otherwise 0	(Allegrini & Greco 2013; Cerbioni & Parbonetti 2007; Karamanou & Vafeas 2005)
Audit Committee Composition (ACC)	Proportion of independent directors on the Audit Committee.	(Akhtaruddin & Haron 2010; Li et al. 2012)
Foreign ownership (FNO)	Percentage of shares owned by the foreign investors	(Barako et al. 2006a; Haniffa & Cooke 2005; Khan et al. 2013)
Director Ownership (DO)	Percentage of shares owned by directors	(An et al. 2011; Donnelly & Mulcahy 2008; Eng & Mak 2003; Khan et al. 2013; Mohd Ghazali 2007)
Institutional Ownership (INO)	Percentage of shares owned by the Institutions	(Donnelly & Mulcahy 2008; Khlif et al. 2016; Laidroo 2009)

5.5 Firm Performance Variables

The assessment of firm performance is a complex matter as various contingent factors are related to the measurement process (Orlitzky et al. 2003; Peloza 2009; Richard et al. 2009; Wu 2006). In the literature, a significant number of indicators has been considered. This wide range of indicators can be categorized into three main groups: accounting-based measurements (e.g., ROA, ROS), market-based measurements (e.g., MCAP, EPS) and mixed measurements (e.g., Tobin's Q).

Among the categories, accounting measurement is the most common, valid and easily available measure and reflects the internal efficiency of a firm (Cochran & Wood 1984; Richard et al. 2009). Orlitzky et al. (2003, p. 408) describe accounting-based measure in the following way,

> Accounting returns are subject to managers' discretionary allocations of funds to different projects and policy choices, and thus reflect internal decision-making capabilities and managerial performance rather than external market responses to organizational (non-market) actions.

However, accounting measures are also open to criticism. For instance, a firm may manipulate accounting numbers or select a particular method of measurement (Azim 2012; Richard et al. 2009) that leads to inconsistency in performance measurement systems. Wiwattanakantang (2001) also indicates that accounting performance measurements may not reveal all relevant agency costs.

Market-based measures are forward looking and also incorporate the intangible assets of a firm (Fisher & McGowan 1983; Lev 2000). However, this feature does not mean that market measurement is free from limitations as market-based measurements are not alienated from efficiency effects (Bacidore et al. 1997; Joh 2003).

Besides accounting and marked-based performance measurements, a mixed method is available. Richard et al. (2009, p. 732) consider Tobin's Q as a popular mixed measurement:

> An advantage of mixed accounting/financial market measures is that they are better able to balance risk (largely ignored by accounting measures) against operational performance issues that are sometimes lost in market measures. Examples of mixed measures are given in Table 4. Tobin's q is perhaps the earliest and most popular hybrid measure of firm performance.

However, Tobin's Q is also subject to criticism as it considers proxies to measure firm performance and these proxies might not be calculated accurately (Varaiya et al. 1987).

In light of the above, selection of a particular method for measuring firm performance can be problematic as every category of firm performance measurement method has both limitations and some useful features (Deegan & Faux 2005; Orlitzky et al. 2003; Richard et al. 2009). Consequently, consideration of multiple indicators may resolve this quandary as each indicator can supplement and mitigate potential limitations. A review and meta-analysis of a large number of prior studies suggests that consideration of a multiple measurement indicator approach is justified (Dalton et al. 1998; Dalton et al. 1999; Griffin & Mahon 1997; Orlitzky et al. 2003). Therefore, this study measures firm performance based on widely used measurements from each category (e.g., accounting, market and mixed measurement) (Griffin & Mahon 1997; Lu et al. 2014; Margolis & Walsh 2003; Orlitzky et al. 2003; Richard et al. 2009). In particular, Return on Asset and Return

on Sales as accounting measures, Market Capitalization and Earnings per Share as marketing measures, and Tobin's Q as mixed measurement are indicator of firm performance for this study. The significance of each indicator and measurement process are discussed below.

5.5.1 Return on Asset

Return on Asset is an accounting measure of firm performance used to assess the profitability of a firm's assets. In the literature, among several accounting measurements, ROA is considered as the most common, widely used and significant variable (Aerts et al. 2008; Choi et al. 2010; Eng & Mak 2003; Khan et al. 2013; Orlitzky et al. 2003; Patelli & Prencipe 2007; Teoh et al. 1998; Yusoff et al. 2013). In addition, ROA has been considered as an important factor for voluntary disclosure within various research contexts, including developed as well as developing countries.

Some distinct features of ROA make it a pertinent and operational indicator of firm performance. *First,* assets are a fundamental element to cover liability and equity. A higher level of ROA means the firm has invested efficiently and has the capability of managing firm debt and equity in an efficient manner. As a result, a stakeholder may receive a signal that the firm is being managed well. *Second,* ROA is an ultimate profitability measurement used to assess the efficiency of a firm's assets or to calculate a firm's ability to generate profit.

ROA is calculated as Net Profit after Tax scaled by book value of the total assets of the firm for a particular year. This measurement process is consistent with prior studies (Aerts et al. 2008; Eng & Mak 2003; Patelli & Prencipe 2007).

5.5.2 Return on Sales

Return on Sales is another accounting measure of firm performance used to calculate profitability in relation to a firm's sales. Prior studies considered ROS as a significant indicator of firm performance (Orlitzky et al. 2003; Richard et al. 2009) and it is widely considered within disclosure-related studies (Aras et al. 2010; Chen & Wang 2011).

Some distinct feature of ROS makes it a widely used indicator of firm performance. First, ROS measures performance on the basis of return on sales.

Therefore, a better understanding regarding profitability might be achieved by considering this indicator. Second, customers' perception of the price of a firm's product or service influences their decision to pay for that product or service. In particular, it should be noted that having a positive impression may provide the flexibility of charging a higher price to improve ROS. As a firm performance indicator, ROS is particularly relevant for voluntary disclosure as customer perception is directly reflected in the measurement of ROS.

Therefore, consistent with prior studies, ROS is considered as an indicator of firm performance and is calculated as Net Profit after Tax scaled by total sales of the firm for a particular year (Aras et al. 2010; Chen & Wang 2011; Chen et al. 2016).

5.5.3 Market Capitalization

Market capitalization is a market-based firm performance metric and represents the total value of a firm's common stock. Although it is not widely used as an indicator of firm performance (Mathews 1997; Orlitzky et al. 2003; Richard et al. 2009), this indicator has some distinct features. *First,* market capitalization may cover potential pitfalls of accounting-based measurements as this measurement integrates intangible assets more effectively (Lev 2000). Forbes (2002) advocates market capitalization as a relevant firm performance metric and argues that it may capture the long-term effects of a firm's operational activities. Therefore, market capitalization can provide insight into the potential future prospects of the firm. *Second,* market capitalization represents the total value of a firm's common stock and symbolizes the residual worth of the firm's resources. In other words, it reflects the satisfaction of shareholders (e.g., willingness to pay for the share) and shareholders' satisfaction (Cochran & Wood 1984). Therefore, this study is consistent with prior studies and calculates market capitalization by multiplying total common shares outstanding with the current value of common stock for the year ending day of the financial year (Abdolmohammadi 2005; Anam et al. 2011; Brammer et al. 2006)

5.5.4 Earnings per Share

Earnings per share is a market-based firm performance indicator and represents the firm's earnings allocated to each outstanding share of common stock. In other word, EPS assesses the profitability of the firm (Orlitzky et al. 2003; Richard et al. 2009). Accordingly, EPS is widely used in studies related to voluntary disclosure and firm performance and is calculated as earnings after tax divided by total number of outstanding shares at the end of each financial year (Kwanbo 2011; Nor et al. 2016; Oeyono et al. 2011).

5.5.5 Tobin's Q

Tobin's Q is a mixed measurement proxy of firm performance. Originally, Tobin (1969) described the ratio of market value of the firm to the replacement value of the firm's assets. Regarding the assessment of Tobin's Q, if the value of this measurement is within 0 and 1 then the reproduction cost of a firm's assets is higher than the price of equity. If the value is above 1 then the market value of stock is more than the replacement cost of the firm's assets and this represents a better position. The use of a mixed measurement allows the researcher to overcome the limitations of an assessment process that omits important factors. In prior studies, the use of Tobin's Q is popular and since replacement value is difficult to ascertain in the Bangladeshi context, consistent with prior studies and with the Bangladeshi context this study measures Tobin's Q (Agrawal & Knoeber 1996; Rashid et al. 2010; Rashid 2009).

Tobin's Q = (MV Equity+ BV Debt + BV Preferred Stock)/BV Assets

Where,
MV Equity= Market value of the Equity;
BV Debt =Book value of debt;
BV Preferred Stock= Book value of Preferred Stock;
BV Assets= Book value of Assets;

5.5.6 Summary of Firm Performance Measurement

Based on the preceding discussion, the variables, measurement processes and relevant literature in relation to firm performance indicators are summarized in Table 5.7.

Table 5-7 List of firm performance variables with measurement process

Variable	Measurement	References
Return on Asset	Net Profit after Tax / Book value of total asset	(Aerts et al. 2008; Eng & Mak 2003; Patelli & Prencipe 2007)
Return on Sales	Net Profit after Tax / Total Sales	(Aras et al. 2010; Chen & Wang 2011; Chen et al. 2016)
Market Capitalization	Multiplying total common share outstanding with the current value of common stock	(Abdolmohammadi 2005; Anam et al. 2011; Brammer et al. 2006)
Earnings per Share	Earnings after tax / Total number of outstanding shares at the end of each financial year	(Kwanbo 2011; Nor et al. 2016; Oeyono et al. 2011)
Tobin's Q	(Market Value of the Equity+ Book value of the debt + Book value of Preferred Stock) / Book value of Assets	(Agrawal & Knoeber 1996; Rashid et al. 2010; Rashid 2009)

5.6 Control Variables

Other variables that may moderate voluntary disclosure and firm performance have been identified in the literature. Thus, this study considers these factors as control variables.

Prior studies have established that firm characteristics play a crucial role in determining voluntary disclosures of a firm (Ahmed & Courtis 1999; Alsaeed 2006; Orlitzky 2001; Raffournier 1995) A significant number has been reported and Alsaeed (2006) suggests that they may be separated into three categories: structure-related variables (e.g., firm size and leverage), market-related variables (e.g., industry type) and performance-related variables (e.g., return on asset, Earnings per share, Tobin's Q). Prior studies also consider firm size, leverage, industry type and firm performance as potential significant determinants of voluntary disclosure (Ahmed & Courtis 1999; Alsaeed 2006; Cooke 1992; Fifka 2013). Consistent, with the literature, this study considers firm size, leverage, industry type and firm performance indicators as control variables.

To examine the effects of voluntary disclosure, prior studies have also reported that firm characteristics may moderate firm performance (Orlitzky 2001; Ullmann 1985; Waddock & Graves 1997). Within the literature, a large number of prior studies has considered firm size, leverage and industry type as potential explanatory factors for firm performance (Anam et al. 2011; Choi et al. 2010; Mishra & Suar 2010; Qiu et al. 2016). Accordingly, this study considers firm size,

leverage and industry type as a control variable for examining the effects of voluntary disclosure on firm performance. It should also be noted that a large number of prior studies argue that the features of a board (e.g., CEO duality, board independence) may moderate firm performance (Dalton et al. 1998). Thus, to examine the effects of voluntary disclosure a large number of prior studies has considered CEO duality and board independence as an explanatory factor of firm performance (Dalton et al. 1998; Farooque et al. 2007; Nahar Abdullah 2004; Rashid et al. 2010; Rechner & Dalton 1991). In line with these studies, this study considers CEO duality and board independence as a control variable for model 2.

Therefore, to investigate the determinants and effects of voluntary disclosure, this study selects firm size, leverage and industry type as control variables. Besides these variables, firm performance is considered as a control variable for examining the determinants of voluntary disclosure. Similarly, board size and board independence are considered to examine the effects of voluntary disclosure. Details of these control variables are presented below.

5.6.1 Firm Size (SIZE)

Firm size is one of the widely considered explanatory factors that may moderate voluntary disclosure (Ahmed & Courtis 1999) as well as firm performance (Capon et al. 1990).

Regarding firm size as a determinant of voluntary disclosure, Firth (1979) and Singhvi and Desai (1971) argue that there are significant reasons to consider larger firm size as an explanatory factor. *First,* larger firms may have the capability to afford extra costs to manage voluntary disclosure. Similarly, a larger firm has the potential to address issues efficiently through scaled economic activity and this may significantly reduce costs. *Second,* larger firms rely more on the stock market for financing. As a result, extra disclosure may reduce the cost of finance. *Third,* larger firms are more sensitive towards political costs. Therefore, to avoid public criticism or government involvement, larger firms disclose more. *Finally,* smaller firms may prefer to keep internal information secret as it may be key to providing competitive advantage. As a result, they may be reluctant to disclose more. Conversely, it could be argued that smaller firms may be more proactive in voluntary disclosure compared to larger firms, particularly because smaller firms have limited

information to disclose. Hence, smaller firms can easily legitimize their activities with less cost by considering voluntary disclosure while larger firms attract higher costs to manage large amounts of information. Therefore, firm size may play a critical role in decisions to disclose information but the decision to do so voluntarily depends, to a certain extent, on the context and circumstances of the firm. The significance of firm size is observable in prior studies. A significant number of prior studies explore the influence of firm size on voluntary disclosure and the contributions and results are varied based on the research context (Adams 2002; Eng & Mak 2003; Hackston & Milne 1996; Haji 2013; Haniffa & Cooke 2005; Ho & Wong 2001; Li et al. 2008; Patten 2002; Stanwick & Stanwick 1998).

Besides voluntary disclosure, firm size is also significant for firm performance. It could be argued that larger firms may have the ability to access finance to enhance performance (Majumdar & Chhibber 1999; Short & Keasey 1999). However, a larger firm may suffer from lack of coordination (Williamson 1967) or from higher costs, which can be detrimental to firm performance. Accordingly, firm size is considered as a control variable to explore the effects of voluntary disclosure on firm performance (Anam et al. 2011; Cheng et al. 2016; Choi et al. 2010; Mishra & Suar 2010)

From the above discussion, firm size is deemed to be a relevant factor for examining the determinants and effects of voluntary disclosure and is therefore considered as a control variable for this study. Consistent with prior studies, total revenue (natural log of revenue) is used as a reasonable proxy for firm size (Haji 2013; Li et al. 2008; Patten 2002; Stanwick & Stanwick 1998).

5.6.2 Leverage

Firm leverage refers to the ratio of debt to equity. Firm leverage reflects the capital structure of a firm and may moderate the voluntary disclosure decision (Naser 1998; Xiao et al. 2004) as well as firm performance.

From a disclosure perspective, higher leverage may increase monitoring costs (Jensen & Meckling 1976) and increase information asymmetry as creditors may require extra information about firm activities. Conversely, it could also be argued that voluntary disclosure may reduce information asymmetry and facilitate

several investors or creditors since, in order to access finance, a firm must ensure transparency. As a result, leverage may act as an explanatory factor for voluntary disclosure. Within the literature, leverage is widely considered as a control variable for exploring the determinants of voluntary disclosure (Barako et al. 2006a, 2006b; Cheng & Courtenay 2006; Khan et al. 2013; Muttakin & Khan 2014; Muttakin et al. 2015).

However, a more leveraged firm may also have to incur extra costs (interest expense) and this may mitigate or overturn potential benefits to firm performance. In any case, the agency costs of the firm can be addressed through the threat of liquidation (Berger & Di Patti 2006) and the responsibility attached to leveraging activities can lead to better performance. Thus, leverage is widely considered as a control variable in prior studies to examine the effects of voluntary disclosure on firm performance (Anam et al. 2011; Cheng et al. 2016; Lima Crisóstomo et al. 2011; Qiu et al. 2016).

Therefore, firm leverage (debt to equity ratio) is included as a control variable for examining the determinants and effects of voluntary disclosure. Leverage is measured as the ratio of total debt to total equity and this measurement is consistent with prior studies (Anam et al. 2011; Cheng & Courtenay 2006; Muttakin et al. 2015; Qiu et al. 2016).

5.6.3 Industry

Industry type can be an important factor for exploring the determinants of voluntary disclosure as well as for the effects on firm performance as the level of information, activities, revenue and expenses are not the same across industries.

To examine the determinants of voluntary disclosure, it could be argued that industries such as cement are heavily regulated in relation to environmental disclosure and may have to report voluntarily on this issue to mitigate societal concerns; whereas many service industries, such as banks do not warrant such attention. Hence, in the context of voluntary disclosure, firm disclosure depends on the type of operating activities. Consistent with this argument, a wide range of prior studies has considered industry context as an important contributing factor for the

determinants and effects of voluntary disclosure (Brammer et al. 2006; Cooke 1992; Haniffa & Cooke 2002).

To examine the effects of voluntary disclosure on firm performance, due to varied capital requirements, revenue and operational cost, firm performance may vary from industry to industry as expenses also vary widely from industry to industry. As a result, a large number of prior studies has considered industry as a control variable to explore the effects of voluntary disclosure on firm performance (Khlif et al. 2015; Qiu et al. 2016).

Therefore, industry type is considered as a control variable. Consistent with the literature, industry type is measured by using a dummy variable (Alsaeed 2006; Cooke 1992). In particular, 1 is awarded if a firm belongs to the financial industry, otherwise 0.

5.6.3 Profitability (Firm Performance): Additional Control Variable for Research Model 1

The concept of agency and signalling theory indicates that a firm with better firm performance intends to convey a message to stakeholders to distinguish it from other firms (Haniffa & Cooke 2002; Owusu-Ansah 1998; Singhvi & Desai 1971; Wallace & Naser 1995). A large number of prior studies has reported that there is a positive relationship between firm performance and voluntary disclosure (Ghazali & Weetman 2006; Mangena & Tauringana 2007). Alternatively, it is also argued that firms with better performance may not disclose more as less disclosure may avoid legal costs (e.g., tax) and protect competitiveness (Prencipe 2004; Verrecchia 1983)

A large number of prior studies considered firm performance as a control variable for examining the determinants of voluntary disclosure (Allegrini & Greco 2013; Bacidore et al. 1997; Barako et al. 2006a, 2006b; Eng & Mak 2003; Ho & Wong 2001). Therefore, consistent with the literature, as a firm performance indicator Tobin’s Q (mixed method indicator) is considered.

5.6.4 Corporate Governance Characteristics: Additional Control Variables for Research Model 2

The concept of agency theory suggests that managing firm performance or maximizing a principal's interests are paramount A large number of prior studies has documented board independence and CEO duality as a moderator of firm performance (Dalton et al. 1998; Nahar Abdullah 2004; Rechner & Dalton 1991), including studies within Bangladesh (Farooque et al. 2007; Rashid et al. 2010). Accordingly, board independence and CEO duality are also considered as control variables to examine the effects of voluntary disclosure (Li et al. 2017). Therefore, in line with the literature, board independence and CEO duality are considered as control variables for examining the effects of voluntary disclosure on firm performance.

5.6.4 Summary of Control Variables Measurement

To investigate the determinants and effects of voluntary disclosure, considered control variables, measurement process and literature references have been summarized in Table 5.8.

Table 5-8 Control variables with measurement process

Control Variables for Research Models 1 & 2		
Variables	**Measurement**	**References**
Firm Size	Natural logarithm of total Revenue	(Haji 2013; Li et al. 2008; Patten 2002; Stanwick & Stanwick 1998)
Leverage	Total Debt/ Equity	(Cheng & Courtenay 2006; Ho & Wong 2001)
Industry	Dummy variable (value 1 = firm belongs to financial industry, value 0 = otherwise)	(Alsaeed 2006; Cooke 1992)
Additional Control Variables for Research Model 1		
Profitability Tobin's Q	(Market Value of the Equity + Book value of the debt + Book value of Preferred Stock) / Book value of Assets	(Agrawal & Knoeber 1996; Rashid et al. 2010; Rashid 2009)
Additional Control Variables for Research Model 2		
Board Composition (BC)	Percentage of independent directors within total number of directors on the board.	(Eng & Mak 2003; Ho & Wong 2001; Khan et al. 2013)
CEO Duality (CD)	Dummy variable (value 1 = CEO and Chairman, value 0 = otherwise)	(Barako et al. 2006a; Huafang & Jianguo 2007; Khan et al. 2013)

5.7 Research Models

To derive sound conclusions based on the research questions, this study considers two research models. Model 1 focuses on the determinants of voluntary disclosure by considering corporate governance characteristics and firm performance as explanatory variables. Model 2 examines the effects of voluntary disclosure by considering firm performance as a dependent variable. Details of each model are provided below.

5.7.1 Research Model 1

Model 1 examines the relationship between corporate governance characteristics and voluntary disclosure. In this model, voluntary disclosure is considered as the dependent variable and corporate governance characteristics re the independent variables. Details are presented as follows:

$$VDI_{it} = \alpha + \beta_1 CD_{it} + \beta_2 BS_{it} + \beta_3 BC_{it} + \beta_4 SC_{it} + \beta_5 ACC_{it} + \beta_6 FO_{it} + \beta_7 DO_{it} + \beta_8 INO_{it} + \beta_9 FS_{it} + \beta_{10} INDUS_{it} + \beta_{11} LEV_{it} + \beta_{12} TOBINQ_{it} + \varepsilon_{it} \quad (1)$$

Where,
VDI_{it} = Total score on Voluntary disclosure,
CD_{it} = CEO Duality,
BS_{it} = Board Size,
BC_{it} = Board Composition,
SC_{it} = Sub-committee,
ACC_{it} =Audit Committee Composition,
FNO_{it} = Foreign Ownership,
DO_{it} = Director Ownership,
INO_{it} = Institutional Ownership,
Control variables FS_{it} = Firm size, $INDUS_{it}$ = Industry type, LEV_{it} = Leverage and Tobin's Q_{it} = Firm Performance
ε_{it} = error term

5.7.2 Research Model 2

Model 2 investigates the effects of voluntary disclosure on firm performance in the following year. In regards to firm performance measurement, this study considers five different firm performance indicators. Hence, model 2 consists of five sub-models.

The basic model is presented as s follows:

$$FP_{it+1} = \alpha + \beta 1 * VDI_{it} + \beta 2 * FS_{it} + \beta 3 * INDUS_{it} + \beta 4 * LEV_{it} + \beta 5 * CD_{it} + \beta 6 * BC_{it} + \varepsilon_{it} \ldots\ldots\ldots.2$$

Where,
FP_{it+1} = Firm performance for the following year,

VDI_{it} = Total score on voluntary disclosure,

Control variables: FS_{it} = Firm size, $INDUS_{it}$ = Industry type, LEV_{it} = Leverage, CD_{it} = CEO Duality and BC_{it} = Board Composition

ε_{it}= error term

As on the considered five firm performance indicators, the five sub-models are as follows,

$$ROA_{it+1} = \alpha + \beta 1 * VDI_{it} + \beta 2 * FS_{it} + \beta 3 * INDUS_{it} + \beta 4 * LEV_{it} + \beta 5 * CD_{it} + \beta 6 * BC_{it} + \varepsilon_{it} \ldots\ldots\ldots.2.1$$

$$ROS_{it+1} = \alpha + \beta 1 * VDI_{it} + \beta 2 * FS_{it} + \beta 3 * INDUS_{it} + \beta 4 * LEV_{it} + \beta 5 * CD_{it} + \beta 6 * BC_{it} + \varepsilon_{it} \ldots\ldots\ldots.2.2$$

$$MCAP_{it+1} = \alpha + \beta 1 * VDI_{it} + \beta 2 * FS_{it} + \beta 3 * INDUS_{it} + \beta 4 * LEV_{it} + \beta 5 * CD_{it} + \beta 6 * BC_{it} + \varepsilon_{it} \ldots\ldots\ldots.2.3$$

$$EPS_{it+1} = \alpha + \beta 1 * VDI_{it} + \beta 2 * FS_{it} + \beta 3 * INDUS_{it} + \beta 4 * LEV_{it} + \beta 5 * CD_{it} + \beta 6 * BC_{it} + \varepsilon_{it} \ldots\ldots\ldots.2.4$$

$$TOBIQ_{it+1} = \alpha + \beta 1 * VDI_{it} + \beta 2 * FS_{it} + \beta 3 * INDUS_{it} + \beta 4 * LEV_{it} + \beta 5 * CD_{it} + \beta 6 * BC_{it} + \varepsilon_{it} \ldots\ldots\ldots.2.5$$

5.8 Statistical Tests

Various statistical tests have been applied to investigate the determinants and effects of voluntary disclosures and discussed in the following.

5.8.1 Test of Assumptions of Model

Before proceeding with any statistical analysis, an investigation of several assumptions including normality, multicollinearity, heteroscedasticity and endogeneity is advisable (Gujarati 2003; Rashid 2015a, 2015b, 2015c) to achieve a bias free result. Thus, this thesis considers these tests before proceeding towards

statistical analyses. In the following, details of these tests are discussed respectively.

5.8.1.1 Normality

This assumption is based on the view that all observations will be distributed normally within the population. Whilst this is true Brooks (2008, p. 164) has stated that, "for sample sizes that are sufficiently large, violation of the normality assumption is virtually inconsequential". Coakes and Steed (2001) also note that violation of normality is not a significant concern if the sample size is large (greater than 30). Therefore, having a large sample (402 firm-year observations) provides the researcher with confidence that normality should not be a concern for this study. However, Residual Test/Histogram–Normality Test of the regression equation is considered to confirm normality in this study.

5.8.1.2 Multicollinearity

Multicollinearity refers to the situation of having a high or significant correlation among independent variables (Brooks 2008, p. 171) and making it difficult to assess the effect of independent variables on dependent variables. Therefore, this study considers Pearson correlation coefficients (parametric), Spearman correlation coefficients (non-parametric), [35] and Variance Inflation Factor (VIF)[36] tests for multicollinearity. These tests contribute to the validity of the method adopted in this study.

5.8.1.3 Heteroscedasticity

Heteroscedasticity refers to the presence of an error term in the estimated model that is not constant. The existence of heteroscedasticity may lead to a distorted result. To investigate the presence of heteroscedasticity, this study plots standardized residuals (ZRESID) versus the standardized predicted value (ZPRED). In addition, based on the guidance of (Cooke 1998) a further assessment using the Breusch–Pagan–Godfrey test is conducted.

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[35] Multicollinearity may be a problem when the correlation exceeds 0.80 (Gujarati, 2003, p. 359).
[36] Multicollinearity may be a problem when VIF is above 10 or tolerance level is close to 0 (Gujarati, 2003, p. 362).

5.8.1.4 Endogeneity

Endogeneity refers to the presence of high correlation between dependent and explanatory variables and the error term (Wooldridge Jeffrey 2002, p. 50). It has been noted that, in the context of corporate governance, voluntary disclosure and firm performance may be affected by an endogeneity problem (Ammann et al. 2011).

Therefore, this study primarily applies an endogeneity test for research models 1 and 2 by employing well established techniques, (Elsayed 2011; Rashid 2015a, 2015b, 2015c). Moreover, to examine research model 2, a lagged structure has been applied to investigate the effects of voluntary disclosure on firm performance to avoid the concern of endogeneity (Larcker & Rusticus 2010). A further endogeneity test has been applied to research models 1 and 2 while implementing a robustness test (details are discussed in the robustness test section).

5.8.2 Descriptive Statistics

Descriptive statistics include the basic features of the collected data for the study and provide a simple summary of the data set, at the initial analytical stage. In addition, it is important to offer descriptions or inferences about a data set (Tabachnick & Fidell 2007). Cooper and Schindler (2008) note that descriptive statistics help to explain the centre, spread, and shape of data distributions. Therefore, this study adopts descriptive statistics for all the variables (independent, dependent and control) to provide an overview and analytical resource for further investigation (results are illustrated in Chapters Six and Seven).

5.8.3 Statistical Methods

In order to achieve an effective result, this study proceeds with a panel data analysis using pooled ordinary least squares (OLS) regression. A further analysis is also conducted by using a two stage least squares (2SLS) regression. Details of these are discussed below.

5.8.3.1 Panel Data Analysis

Collection data from an individual sample over a specified period is referred to as 'panel data' and this study considers 134 firms for the period 2011 to 2013 yielding a total firm-year sample of 402. Use of panel data has advantages such as the ability to interpret complicated behavioural models compared to others (Gujarati 2003; Wooldridge 2015).

5.8.3.2 Pooled Ordinary Least Square (OLS)

Within statistical analyses, ordinary least squares (OLS) is one of the most powerful and popular methods of regression if some assumptions (e.g., multicollinearity, heteroscedasticity) are satisfied (Gujarati 2003). Rashid (2015b) advocates that OLS is a suitable approach if multicollinearity, heteroscedasticity and endogeneity issues are addressed properly.

It should also be noted that OLS has been widely used in corporate governance, voluntary disclosure (Eng & Mak 2003; Huafang & Jianguo 2007; Wang & Claiborne 2008) and firm performance-related studies (Qiu et al. 2016; Scholtens 2008). Accordingly, considering the research context and consistent with the literature, this study considers OLS in conjunction with retrieved panel data.

5.8.3.3 Two Stage Least Square (2SLS)

Cooke (1998, p. 209) states "… no one procedure is the best but that multiple approaches are helpful to ensure the results are robust across methods". Within prior studies, two stage least squares regression has been considered as an alternative statistical method for exploring the relationship between corporate governance characteristics and voluntary disclosure (Lim et al. 2007; Ntim et al. 2013), and firm performance and voluntary disclosure (Al-Tuwaijri et al. 2004). Therefore, to examine the determinant and effects of voluntary disclosure as an alternative statistical approach, this study considers 2SLS to confirm the result.

5.8.4 Robustness Test

Two robustness tests have been applied for every research model and details are discussed below.

5.8.4.1 Robustness Test for Research Model 1

Endogeneity is a concern for the results related to corporate governance, performance and social responsibility-related studies (Jo & Harjoto 2012; Larcker et al. 2007; Larcker & Rusticus 2007, 2010; Wintoki et al. 2012). Thus, to ensure a strong result, a further endogeneity test has been applied by considering an alternative measurement process for a few corporate governance variables. This alternative measurement approach is consistent with prior studies (Jiang & Habib 2009; Vu 2012). Within the literature, ownership variables have been measured by considering a dummy variable, for example, for the presence of ownership, 1 is awarded, otherwise 0 (Gelb 2000; Ho & Wong 2001; Huafang & Jianguo 2007; Vu 2012) or ownership is examined in low and high ownership concentration levels (above and below 20 per cent level) (La Porta et al. 2000). Accordingly, this study measures foreign, director and institutional ownership by considering dummy variables for low and high ownership concentration levels (above and below 20 per cent level). In addition, consistent with this approach, this study also applies an alternative measurement for board composition and audit composition (above and below 20 per cent level). Within model 1, alternative measurement for board composition and audit composition, and foreign, director and institutional ownership have been applied.

This study considers three different categories of voluntary disclosure including social, environmental and intellectual capital disclosures. A large number of studies also explored the determinants of voluntary disclosure by considering these categories separately. In particular, the effects of social disclosure (Haniffa & Cooke 2005; Khan et al. 2013; Khan 2010), environmental disclosure (Halme & Huse 1997; Iatridis 2013; Rao et al. 2012) and intellectual capital disclosure (Abeysekera 2010; Cerbioni & Parbonetti 2007; Li et al. 2008). Therefore, as a robustness test, this study investigates the determinants and effects of voluntary disclosure by replacing voluntary disclosure variables (VDI_{it}) with social disclosures (SDI_{it}), environmental disclosures (EDI_{it}) and intellectual capital disclosures ($ICDI_{it}$) within research model 1. Details of the additional research models for robustness test 2 are presented below:

$$SDI_{it} = \alpha + \beta 1CD_{it} + \beta 2BS_{it} + \beta 3BC_{it} + \beta 4SC_{it} + \beta 5ACC_{it} + \beta 6FO_{it} + \beta 7DO_{it} + \beta 8INO_{it} + \beta 9FS_{it} + \beta 10INDUS_{it} + \beta 11LEV_{it} + \beta 12TOBINQ_{it} + \varepsilon_{it} \qquad {}_{M.1.R2.1}$$ [37]

$$EDI_{it} = \alpha + \beta 1CD_{it} + \beta 2BS_{it} + \beta 3BC_{it} + \beta 4SC_{it} + \beta 5ACC_{it} + \beta 6FO_{it} + \beta 7DO_{it} + \beta 8INO_{it} + \beta 9FS_{it} + \beta 10INDUS_{it} + \beta 11LEV_{it} + \beta 12TOBINQ_{it} + \varepsilon_{it} \qquad {}_{M.1.R2.2}$$

$$ICDI_{it} = \alpha + \beta 1CD_{it} + \beta 2BS_{it} + \beta 3BC_{it} + \beta 4SC_{it} + \beta 5ACC_{it} + \beta 6FO_{it} + \beta 7DO_{it} + \beta 8INO_{it} + \beta 9FS_{it} + \beta 10INDUS_{it} + \beta 11LEV_{it} + \beta 12TOBINQ_{it} + \varepsilon_{it} \qquad {}_{M.1.R2.3}$$

5.8.4.2 Robustness Test for Research Model 2

Consistent with research model one, two robustness tests have been applied for research model two and the details are discussed below.

To ensure the results are free of endogeneity, a further test has been applied. In particular, with regard to the relationship between firm performance and voluntary disclosure, an alternative view that firm performance may moderate voluntary disclosure exists. Thus, the result for model 2 might be subject to a reverse causality problem. In addition to adopting a lag year concept, research model two is further sub-categorized (Rashid, 2015a):

$$ROA_{it+1} = \alpha + \beta 1ROA_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.1$$ [38]

$$ROS_{it+1} = \alpha + \beta 1ROA_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.2$$

$$MCAP_{it+1} = \alpha + \beta 1MCAP_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.3$$

$$EPS_{it+1} = \alpha + \beta 1EPS_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.4$$

$$TOBINQ_{it+1} = \alpha + \beta 1TOBINQ_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.5$$

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[37] M1 refers to Model One.R.2 refers to Robustness test Two. Therefore, M1.R.2.1 means first sub model to examine Second Robustness test of Model One.

[38] Consistent with previous explanation, M2 refers to Model Two.R.1 refers to Robustness test One. Thus, M2.R.1.1 means first sub model to examine First Robustness test of Model Two.

$$VDI_{it+1} = \alpha + \beta 1ROA_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.6$$

$$VDI_{it+1} = \alpha + \beta 1ROS_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.7$$

$$VDI_{it+1} = \alpha + \beta 1MCAP_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.8$$

$$VDI_{it+1} = \alpha + \beta 1EPS_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.9$$

$$VDI_{it+1} = \alpha + \beta 1TOBINQ_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.10$$

To extend the understanding of the effects of voluntary disclosure on firm performance, a second robustness test has been applied by replacing voluntary disclosure with three main categories separately. Accordingly, as a second robustness test, this study investigates the effects of voluntary disclosure by replacing voluntary disclosure variables (*VDI_{it}*) with social disclosures (*SDI_{it}*), environmental disclosures (*EDI_{it}*) and intellectual capital disclosures (*$ICDI_{it}$*) within research model 2. Details of the additional research models for robustness test 2 are as follows:

$$ROA_{it+1} = \alpha + \beta 1SDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots\ldots\ldots. M2.R2.1$$ [39]

$$ROS_{it+1} = \alpha + \beta 1SDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots\ldots\ldots. M2.R2.2$$

$$MCAP_{it+1} = \alpha + \beta 1SDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots\ldots\ldots. M2.R2.3$$

$$EPS_{it+1} = \alpha + \beta 1SDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots\ldots\ldots. M2.R2.4$$

$$TOBIQ_{it+1} = \alpha + \beta 1SDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots\ldots\ldots. M2.R2.5$$

$$ROA_{it+1} = \alpha + \beta 1EDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots\ldots\ldots. M2.R2.6$$

[39] Consistent with the previous explanation, M2 refers to Model Two. R.2 refers to Robustness test Two. Thus, M2.R.2.1 means first sub model to examine Second Robustness test of Model Two.

$$ROS_{it+1} = \alpha + \beta 1EDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots \dots \dots . M2.R2.7$$

$$MCAP_{it+1} = \alpha + \beta 1EDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots \dots \dots . M2.R2.8$$

$$EPS_{it+1} = \alpha + \beta 1EDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots \dots \dots . M2.R2.9$$

$$TOBIQ_{it+1} = \alpha + \beta 1EDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots \dots . M2.R2.10$$

$$ROA_{it+1} = \alpha + \beta 1ICDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots \dots . M2.R2.11$$

$$ROS_{it+1} = \alpha + \beta 1ICDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots \dots . M2.R2.12$$

$$MCAP_{it+1} = \alpha + \beta 1ICDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots \dots . M2.R2.13$$

$$EPS_{it+1} = \alpha + \beta 1ICDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots \dots . M2.R2.14$$

$$TOBIQ_{it+1} = \alpha + \beta 1ICDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots \dots . M2.R2.15$$

5.9 Summary and Conclusion

This chapter presents the research methodology for this study. Section 5.2 presents justification for the sample design and data selection. Data for the three-year period from 2011 to 2013 is used, yielding a total firm-year sample of 402. In regards to sampling, this study considers the top 200 firms listed on the Dhaka Stock Exchange. Annual reports obtained for the period 2011 to 2013 are used as the main source of data. In addition, as a source of firm performance data, the Bloomberg database is used. It is expected that the results from these respective periods may provide interesting findings as there are very few studies that consider examining voluntary disclosure from a Bangladeshi perspective following the severe stock market collapse and the reformation of the SEC. Annual reports are considered a relevant source of voluntary disclosure as these are regularly published and are reliable documents, utilized by most firms to communicate financial and non-

financial information to those who are deemed to be the most important stakeholders.

Section 5.3 describes the measurement process of voluntary disclosure by constructing a disclosure index. The process of constructing a voluntary disclosure index is completed in four steps. *First,* a list of voluntary disclosure items was gathered based on prior studies as well as studies within the Bangladeshi context. By doing so this study relies on three significant categories of voluntary disclosure including social, environmental and intellectual capital disclosures. *Second,* selected items were reviewed and altered within the context of this study. In particular, several sub-categories for social and environmental disclosures were combined within the frame of the strategic/long-term, current/short-term, and generic focus. Furthermore, a total of 80 items was considered for the voluntary disclosure index including 28 social, 30 environmental and 22 intellectual capital disclosures items. *Third,* by considering content analysis, selected items were measured and the allocated score unweighted. *Finally,* the reliability and validity of this index was confirmed by applying several tests.

Section 5.4 describes the measurement process of corporate governance characteristics variables, including CEO duality, board size, board composition, sub-committee, audit committee composition, foreign ownership, director ownership and institutional ownership. Section 5.5 presents the measurement process of various firm performance indicators. Firm performance indicators were within the category of accounting-based measurement (return on asset, return on sales), market-based measurement (market capitalization, earnings per share) and mixed measurement (Tobin's Q). In addition, the measurement process of considered control variables including firm size, leverage and industry were presented in Section 5.6.

The research models for this study were discussed in Section 5.7. Research model 1 considers corporate governance characteristics as a determinant of voluntary disclosure. In addition, model 2 emphasizes the effects of voluntary disclosure by considering firm performance as an effect variable.

Finally, various statistical approaches were applied, including descriptive statistics, normality, multicollinearity, heteroscedasticity and endogeneity tests. In

addition, this study considers pooled ordinary least squares and two stage least squares regressions to explore the determinants and effects of voluntary disclosure. Finally, two robustness tests, including an additional endogeneity test and a test in which voluntary disclosures were replaced with social, environmental and intellectual capital disclosures, for research models one and two were applied. The following Chapters Six and Seven presents the results of the study.

Chapter Six: Results – The Relationship between Corporate Governance Characteristics and Voluntary Disclosure

6.1 Introduction

Chapters Two to Five outline the literature, develop research questions and the theoretical framework, describe the background of research within the context of Bangladesh, develop relevant hypotheses and demonstrate the research approach utilized in this thesis. This chapter presents the findings related to the first research question: To what extent do corporate governance characteristics affect voluntary disclosure of social, environmental and intellectual capital disclosures in Bangladesh listed firms? It does so in relation to corporate governance characteristics as a potential determinant. This chapter presents and analyses the results and the remainder of this chapter is organized as follows.

Section 6.2 provides details of the descriptive statistics of dependent, independent and control variables pertaining to research question one. The dependent variable is Voluntary Disclosure Index (VDI). The independent variables consist of CEO Duality, Board Size, Board Composition, Sub-committee, Audit Committee Composition, Foreign Ownership, Director Ownership and Institutional Ownership. The control variables consist of firm size, leverage, industry and firm performance. Section 6.3 conducts diagnostic analyses including normality, multicollinearity, heteroscedasticity and endogeneity tests relating to the variables used in examining the relationship between corporate governance characteristics and voluntary disclosure. Section 6.4 presents the results obtained from the statistical analyses including OLS and 2SLS to assess the determinants of voluntary disclosure to answer research question one. Section 6.5 discusses the robustness of the results by conducting further analysis of an additional endogeneity test and replacing the current dependent variable VDI with Social Disclosure Index (SDI), Environmental Disclosure Index (EDI) and Intellectual Capital Disclosure Index (IDI). Finally, Section 6.6 presents a summary and conclusion of this chapter.

6.2 Descriptive Statistics

Descriptive statistics concerning research question one (research model 1) are presented in this section. Descriptive statistics (mean, median and standard deviation) for the dependent variable, independent variables and control variable are provided in Sub-sections 6.2.1, 6.2.2 and 6.2.3 respectively.

6.2.1 Descriptive Statistics – Dependent Variable: Voluntary Disclosure Index

Table 6.1 reports descriptive statistics for voluntary disclosures, including three main categories: social, environmental and intellectual capital disclosures. It also presents the sub-categories of disclosures, that is, social (SSD, CSD, GSD), environmental (SED, CED, GED) and intellectual capital disclosures (INCD, EC, HC).

Table 6-1 Descriptive statistics for Voluntary Disclosure

	Mean	Median	Std. Dev.	Observations
Voluntary Disclosure	0.1616	0.1375	0.1293	402
Social Disclosure	0.1692	0.1333	0.1411	402
Environmental Disclosure	0.13	0.1071	0.1177	402
Intellectual Capital Disclosure	0.1914	0.1363	0.1657	402
Long-term Social Disclosure	0.0864	0.0526	0.1142	402
Short-term Social Disclosure	0.226	0.1111	0.2235	402
General Social Disclosure	0.6977	1.0000	0.3852	402
Long-term Environmental Disclosure	0.0359	0.0000	0.0736	402
Short-term Environmental Disclosure	0.1323	1.0000	0.17	402
General Environmental Disclosure	0.5961	0.6666	0.3843	402
Internal Capital Disclosure	0.1213	0.000	0.1658	402
External Capital Disclosure	0.1627	0.1111	0.1765	402
Human Capital Disclosure	0.2674	0.25	0.228	402

As per Table 6.1, the average corporate voluntary disclosure index is 0.16 and a median of 0.13 reflects that there are very limited voluntary disclosure discharges from the firms and most of the firms are limited to discharging a small number of voluntary disclosures. In addition, within the main categories, the average of social disclosure, environmental disclosure and intellectual capital disclosure is 0.16, 0.13 and 0.19 respectively with a median of 0.13, 0.10 and 0.13 respectively. Thus, compared to social and environmental disclosures, firms are more focused on intellectual capital disclosure while environmental disclosure is less emphasized. Furthermore, regarding the sub-categories of social disclosure, average SSD, CSD and GSD, are 0.08, 0.22 and 0.69 respectively with a median

0.05, 0.11 and 1 respectively. Similarly, for sub-categories of environmental disclosures, SED, CED and GED average 0.03, 0.13 and 0.59 respectively with a median of 0, 1 and 0.66 respectively. Therefore, from a social and environmental disclosure perspective, long-term disclosure is mostly ignored and generic disclosure emphasized. Thus, it can be claimed that firms do not consider social and environmental disclosures as relevant to the strategic agenda of the firm but are keen to seek legitimacy by disclosing information that is general in nature. Finally, for the sub-categories of intellectual capital disclosure, INCD, ECD and HCD average is 0.12, 0.16 and 0.26 respectively with a median of 0, 0.11, 0.25 respectively, reflecting that human capital is more focused while internal capital is mostly ignored.

Therefore, based on the above, it is concluded that within Bangladeshi firms voluntary disclosure is not widely practised. Firms do not adopt voluntary disclosure as a long-term strategy but as a short-term means to deal with an immediate issue.

6.2.2 Descriptive Statistics – Independent Variables: Corporate Governance Characteristics

For research model 1, as a potential determinant of voluntary disclosure, eight corporate governance characteristics: CEO Duality, Board Size, Board Composition, Sub-committee, Audit Committee Composition, Foreign Ownership, Director Ownership and Institutional Ownership are considered as independent variables. Table 6.2 presents the mean, median and standard deviation of independent variables.

Table 6-2 Descriptive statistics for corporate governance characteristics

	Mean	Median	Std. DEV.	Observations
CEO Duality	Dummy Variable			
Board Size	2.1888	2.1972	0.3782	402
Board Composition	0.1684	0.1538	0.113	402
Sub-committee	Dummy Variable			
Audit Committee Composition	0.2938	0.3333	0.1591	402
Foreign Ownership	0.0899	0	0.2161	402
Director Ownership	0.1802	0.15	0.1778	402
Institutional Ownership	0.0683	0.01	0.1112	402

As per Table 6.2, descriptive statistics for CEO duality are not considered as a dummy variable is used for measuring this variable. Average Board Size is 2.18 with a median of 2.19. This means board number of directors is 9 as board size is measured as a logarithm. Therefore, most of the firms align with the corporate governance guideline.[40] Average board composition is 0.15 with a median of 0.15. This suggests that the guideline's minimum requirement of independent directors on a board has not yet been adopted by firms. Similarly, the guideline's requirement in relation to sub-committee has not been adopted. Average audit committee composition is 0.29 with a median of 0.33, reflecting that firms are mostly aligned with the guideline. An average .08 foreign investors with a median of 0 suggests that within listed firms foreign investors are not common. In contrast, average director ownership is 0.18 with a median of 0.15. Thus, director ownership is common among the listed firms in Bangladesh. Finally, average institutional ownership is 0.06 with a median of 0.01. Thus, institutional investors are very limited among the Bangladeshi listed firms.

6.2.3 Descriptive Statistics – Control Variables

For exploring the relationship between corporate governance characteristics and voluntary disclosure firm size, leverage, industry and firm profitability are considered as control variables and Table 6.3 presents the mean, median and standard deviation of these variables.

Table 6-3 Descriptive statistics for control variables

	Firm Size	Leverage	Industry	Firm Profitability
Mean	21.8904	1.2420	Dummy Variable	1.3432
Median	21.8430	0.4674		1.0576
Std. Dev.	1.5290	4.3119		1.3005
Observations	402	402		402

As per Table 6.3, average firm size is 21.89 with median 21.84. This 2.18 or 2.19 reflects that average and median firm size is 306 million as this variable is measured as a logarithm. The average for leverage is 1.24 with a median of 0.46, which means a significant number of firms have debt. Descriptive statistics for industry is not considered as a dummy variable is used for measuring this variable. Finally, average firm profitability is 1.34 with median of 1.05. It should be noted

[40] Corporate Governance Guideline for Bangladeshi firms is discussed in Chapter Five.

that profitability is measured by Tobin's Q; any value equal to or less than 1 reflects that the cost of a firm is higher than the price of equity. Similarly, it is considered that the firm is earning more than the cost or managing profit if the value of Tobin's Q is more than 1. Therefore, from an average value of 1.34 or a median of 1.05 for Tobin's Q, it can be concluded that within the Bangladeshi contexts most of the firms are closer to cover the firm cost marginally or managing profit at a minimum level as the average and median value of Tobin's Q is close to 1.

6.3 Diagnostic Analyses Relating to the Assumptions of Models and Validity of Variables

Prior to proceeding with any statistical analysis, some diagnostic tests are advisable to meet the assumptions of statistical analyses including: normality, multicollinearity, heteroscedasticity and endogeneity (Rashid 2015a; Gujarati 2003).

6.3.1 Testing for Normality

This study examines the normality of data by using probability–probability (P–P) plots of the dependent variable (voluntary disclosure index). The result ensures that the normality assumption is not violated (see Appendix F (a) for result). The normality assumption is further checked by considering a Residual Test/Histogram–Normality Test of the regression equation (in Appendix F (a)). Both results recommend that the assumption of normality is violated for model 1.

However, Coakes and Steed (2001) suggest that violation of normality is not a significant concern if the sample size is large (greater than 30). Brooks (2008, p. 164) further advocates as follows:

> For sample sizes that are sufficiently large, violation of the normality assumption is virtually inconsequential. Appealing to a central limit theorem, the test statistics will asymptotically follow the appropriate distributions even in the absence of error normality.

Therefore, the results from relevant normality tests and the existence of a large sample (402 firm-year observations) provide confidence that the assumption of normality is not a concern for this study.

6.3.2 Testing for Multicollinearity

Multicollinearity refers to the situation in which two or more of the explanatory variables used in the regression model are highly correlated. Regarding multicollinearity, Brooks (2008, p. 171) states

> In any practical context, the correlation between explanatory variables will be non-zero, although this will generally be relatively benign in the sense that a small degree of association between explanatory variables will almost always occur but will not cause too much loss of precision. However, a problem occurs when the explanatory variables are very highly correlated with each other, and this problem is known as *multicollinearity*.

Therefore, it is essential to assess multicollinearity. Consistent with the literature, this study considers correlation coefficients and Variance Inflation Factor (VIF) tests for multicollinearity (Cerbioni & Parbonetti 2007; Eng & Mak 2003; Haniffa & Cooke 2005; Haniffa & Cooke 2002; Ho & Wong 2001). Detailed results are presented in Table 6.4.

As per Table 6.4. the correlation matrix of the explanatory variables are not strongly correlated (correlation coefficients less than 0.62); correlation exceeding 0.80 might be considered as a problem (Gujarati 2003).p 359. Therefore, this test suggests that multicollinearity is not a concern for this study.

In addition, the variance inflation factors (VIFs) of all the variables are less than 2.11. It is argued that the concern of multicollinearity arises if the value of VIF is greater than 10 (Dielman 2001; Gujarati 2003). Thus, there is no potential problem for this study from the VIF perspective. Therefore, based on the results of the diagnostic tests, it is concluded that there is no multicollinearity problem for model 1.

Table 6-4 Correlation coefficient matrix and Variance Inflation factor (VIF) of the explanatory variables

	CEO Duality	Board Size	Board Composition	Sub-committee	Audit Committee Composition	Foreign Ownership	Director Ownership	Institutional Ownership	Firm Size	Leverage	Industry	Firm Performance	VIF
CEO Duality	1.0000												1.0459
Board Size	-0.0725	1.0000											2.1153
Board Composition	-0.0270	-0.3712	1.0000										1.9347
Sub-committee	-0.0397	0.0281	0.0851	1.0000									1.0966
Audit committee Composition	-0.0065	-0.1361	0.6170	0.0016	1.0000								1.7136
Foreign Ownership	-0.0435	-0.0688	0.0672	0.1991	0.0676	1.0000							1.2907
Director Ownership	0.0461	0.0081	-0.0244	-0.1922	0.0008	-0.3061	1.0000						1.1839
Institutional Ownership	-0.0869	0.0358	-0.0922	-0.0178	-0.1083	-0.0926	-0.0157	1.0000					1.0395
Firm Size	-0.0484	0.4204	-0.1117	0.1358	0.0496	0.1497	-0.2342	0.0364	1.0000				1.4851
Leverage	-0.0341	-0.0520	0.0520	-0.0497	0.0575	-0.0546	0.0723	-0.0616	-0.0634	1.0000			1.0289
Industry	-0.1148	0.6281	-0.2310	0.0313	-0.1546	-0.1027	0.0044	0.0347	0.2632	0.0399	1.0000		2.0594
Firm Performance	-0.0428	-0.3743	0.0620	0.0665	0.0079	0.2827	-0.0597	0.0050	-0.3240	-0.0311	-0.5179	1.0000	1.6752

6.3.3 Testing for Heteroscedasticity

Heteroscedasticity refers to the variance of the errors that do not have a constant variance (Brooks 2008), In other words, the assumptions of heteroscedasticity occur when the variance of the error terms differ across observations. It is essential to test this assumption as Gujarati (2003) warns that the presence of heteroscedasticity can lead to incorrect standard errors; thus, any interpretations made could be misleading. To investigate the presence of heteroscedasticity, this study plots standardized residuals (ZRESID) versus the standardized predicted value (ZPRED). Based on the result, the model does not completely dismiss the possibility of heteroscedasticity (see Appendix F (b)) for result). Cooke (1998) advises that the Breusch–Pagan–Godfrey test can also be applied for assessing the presence of heteroscedasticity. Accordingly, this study applies the Breusch–Pagan–Godfrey test, the results of which are presented in Table 6.5.

Table 6-5 Heteroscedasticity test: Breusch-Pagan-Godfrey

F-statistic	6.714790	Prob. F(12,389)	0.0000
Obs**R*-squared	68.98147	Prob. Chi-Square(12)	0.0000
Scaled explained SS	66.98439	Prob. Chi-Square(12)	0.0000

Table 6.5 shows a significant (0.000) chi-square for observed *R* Square. Accordingly, the chi-square statistics and corresponding *p*-value of the Breusch–Pagan–Godfrey test suggest that heteroscedasticity is present in the model.

Therefore, based on both tests, there is a concern in relation to heteroscedasticity. Accordingly, the presence of heteroscedasticity is corrected by using White's (1980) correction technique for unknown heteroscedasticity; this approach is consistent with prior studies (Rashid 2015a, 2015b, 2015c).

6.3.4 Testing for Endogeneity

An endogeneity problem is considered a significant pitfall for corporate governance-related studies as its presence may lead to distorted results (Larcker et al. 2007; Larcker & Rusticus 2007, 2010; Rashid 2015b). However, while some

earlier studies did not place much emphasis on this issue, this study tests whether endogeneity exists. In so doing, the following established techniques by Gujarati (2003) have been applied.

The predicted values for the independent variables were checked against the dependent variable (see Appendix F (c) for result). In particular, the F test for the predicted value of CEO duality (F= 0.01 and relevant p = 0.9218), board composition (F = 0.24 and relevant p = 0.6210), board size (F = 0.04 and relevant p = 0.8351), sub-committee (F = 1.01 and relevant p = 0.3166), audit committee composition (F = 1.69 and relevant p = 0.1945), foreign ownership (F= 1.15 and relevant p = 0.2844), director ownership (F = 2.33 and relevant p = 0.1281) and institutional ownership (F = 1.27 and relevant p = 0.2601). The F test for the predicted value of every individual variable is insignificant.

Therefore, findings from these tests indicate that there are no signs of potential endogeneity between corporate governance characteristics and voluntary disclosure, suggesting that both the OLS and independent variables are consistent. Detailed results of the endogeneity test are in Appendix F.

6.4 Results: The Relationship Between Corporate Governance Characteristics and Voluntary Disclosure

After addressing the basic assumptions, this study proceeds to investigate the determinants of voluntary disclosure or research model one. It should be noted that besides corporate governance characteristics, this model also considers four control variables, including firm size, leverage, industry and firm profitability. Accordingly, the research model is as follows:

$$VDI_{it} = \alpha + \beta 1\ \mathrm{CD}_{it} + \beta 2\ \mathrm{BS}_{it} + \beta 3\ \mathrm{BC}_{it} + \beta 4\ \mathrm{SC}_{it} + \beta 5\ \mathrm{ACC}_{it} + \beta 6\ \mathrm{FO}_{it} + \beta 7\ DO_{it} + \beta 8\ \mathrm{INO}_{it} + \beta 9\ \mathrm{FS}_{\mathrm{it}} + \beta 10\ \mathrm{IND}_{it} + \beta 11\ \mathrm{LEV}_{it} + \beta 12\ \mathrm{TOBINQ}_{it} + \varepsilon_{it} \quad (1)$$

For investigating this model OLS and 2SLS have been applied. The adjusted R^2 for OLS is 56.40% and 2SLS is 56.0%. This indicates that the independent and control variables explain 56.0% of the variation in the extent of voluntary disclosure. It should be noted that explanatory power is higher than the prior

studies within the Bangladeshi context (Khan et al. 2013; Khan 2010; Muttakin et al. 2016) as well as other developing countries (Gul & Leung 2004; Haji 2015; Haniffa & Cooke 2002; Ho & Wong 2001; Mohd Ghazali 2007). Detailed results of the statistical analyses are presented in Table 6.6.

Table 6-6 Results: Relationship between corporate governance characteristics & voluntary disclosure

	Voluntary Disclosure Index					
Independent Variables	Pooled OLS			2SLS		
	Coefficient	*t*-Statistic	Prob.	Coefficient	*t*-Statistic	Prob.
CEO Duality	-0.073	-2.182	0.029***	-0.072	-2.140	0.033***
Board Size	-0.000	-0.017	0.861	-5.5690	-0.036	0.971
Board Composition	-0.072	-1.536	0.125	-0.074	-1.577	0.115
Sub-committee	0.057	2.882	0.004***	0.053	2.723	0.006***
Audit Committee Composition	0.070	2.188	0.029***	0.072	2.262	0.024***
Foreign Ownership	0.133	4.230	0.000***	0.124	3.848	0.000***
Director Ownership	-0.102	-4.397	0.000***	-0.146	-4.085	0.000***
Institutional Ownership	-0.036	-1.256	0.209	-0.038	-1.330	0.184
Firm Size	0.042	13.416	0.000***	0.041	12.402	0.000***
Leverage	0.000	0.487	0.625	0.000	0.643	0.520
Industry	0.049	3.727	0.000***	0.048	3.628	0.000***
Firm Performance	-0.002	-0.751	0.453	-0.002	-0.800	0.424
	R^{-} 0.564			R^2 0.560		
	Adjusted R^2 0.550			Adjusted R^2 0.546		

** Indicates statistically significant at the 5% level
*** Indicates statistically significant at the 1% level

Based on Table 6.6, the results show a significant negative relationship (OLS: coeff = -0.073, p<0.02 and 2SLS: coeff = -0.072, p<0.03) and supports hypothesis 1(a).

Regarding the relationship between board size and voluntary disclosure, the results show an insignificant association (OLS: coeff = -0.000, p<0.86 and 2SLS: coeff = -5.569, p<0.97); thus, hypothesis1(b) is rejected.

Regarding the relationship between board composition and voluntary disclosure, the results show an insignificant association (OLS: coeff = -0.072, p<0.12 and 2SLS: coeff = -0.074, p<0.11); thus, hypothesis 1(c) is not supported.

Regarding the relationship between sub-committee and voluntary disclosure, the results show a significant positive association (OLS: coeff = 0.057, p<0.00 and 2SLS: coeff = 0.053, p<0.00), thus a the arguments of hypothesis1 (d).

Regarding the relationship between audit committee composition and voluntary disclosure, the results show a significant positive association (OLS: coeff = 0.070, $p<0.02$ and 2SLS: coeff = 0.072, $p<0.02$); thus supporting hypothesis1(e).

Regarding the relationship between foreign ownership and voluntary disclosure, the results show a significant positive association (OLS: coeff = 0.133, $p<0.00$ and 2SLS: coeff = 0.124, $p<0.00$), supporting hypothesis1(f).

Regarding the relationship between director ownership and voluntary disclosure, the results show a significant negative association (OLS: coeff = -0.102, $p<0.00$ and 2SLS: coeff = -0.146, $p<0.00$); thus supporting hypothesis1(g).

Regarding the relationship between institutional ownership and voluntary disclosure, the results show an insignificant association (OLS: coeff = -0.036, $p<0.20$ and 2SLS: coeff = -0.038, $p<0.18$); thus rejecting hypothesis1(h).

Besides the corporate governance characteristics, regarding the relationship between firm size and voluntary disclosure, the results show a significant positive association (OLS: coeff = 0.042, $p<0.00$ and 2SLS: coeff = 0.041, $p<0.00$).

Regarding the relationship between firm leverage and voluntary disclosure, an insignificant association (OLS: coeff = 0.000, $p<0.62$ and 2SLS: coeff = 0.000, $p<0.52$) is observed.

Regarding the relationship between industry and voluntary disclosure, the results show a significant positive association (OLS: coeff = 0.042, $p<0.00$ and 2SLS: coeff = 0.041, $p<0.00$).

Regarding the relationship between firm performance and voluntary disclosure, an insignificant association (OLS: coeff = -0.002, $p<0.45$ and 2SLS: coeff = -0.002, $p<0.42$) is observed.

Therefore, based on the above discussions, some characteristics of corporate governance and control variables act as a significant explanatory factor for voluntary disclosures. Accordingly, a summary of the eight hypotheses and results are presented in Table 6.7.

Table 6-7 Summary – Results of the hypotheses regarding the relationship between corporate governance characteristics and voluntary disclosure

Hypotheses		Expected Result	Results		Hypothesis Rejected / Not Rejected
			Based on OLS	Based on 2SLS	
Hypothesis 1:	CEO duality is negatively associated with voluntary disclosure.	Significant Relationship	Negative Relationship	Negative Relationship	Supported
Hypothesis 2:	There is an association between Board size and voluntary disclosure.	Significant Relationship	No Significant Relationship	No Significant Relationship	Not Supported
Hypothesis 3:	Board composition is positively associated with voluntary disclosure.	Significant Relationship	No Significant Relationship	No Significant Relationship	Not Supported
Hypothesis 4:	There is an association between sub-committee and voluntary disclosure.	Significant Relationship	Positive Relationship	Positive Relationship	Supported
Hypothesis 5:	Audit Committee Composition is positively associated with voluntary disclosure.	Significant Relationship	Positive Relationship	Positive Relationship	Supported
Hypothesis 6:	Foreign Ownership is positively associated with voluntary disclosure.	Significant Relationship	Positive Relationship	Positive Relationship	Supported
Hypothesis 7:	Director ownership is negatively associated with voluntary disclosure.	Significant Relationship	Negative Relationship	Negative Relationship	Supported
Hypothesis 8:	There is an association between Institutional ownership and voluntary disclosure.	Significant Relationship	No Significant Relationship	No Significant Relationship	Not Supported

6.5 Robustness Check

To understand the relationship between corporate governance characteristics and voluntary disclosure more rigorously and to contribute a robust result, the main result findings are tested further. In so doing two different robustness tests have been applied for model 1. Initially, to ensure the results are free from endogeneity, a further test considering an alternative measurement with some corporate governance characteristics is applied. Finally, the relationship of corporate governance characteristics with voluntary disclosure has been assessed by replacing voluntary disclosure with three main categories (social, environmental and intellectual capital).

6.5.1 Robustness Test 1: Additional Endogeneity Test

Alternative measurements of variables representing several corporate governance characteristics, including board composition, audit committee composition, foreign ownership, director ownership and institutional ownership,

have been applied. Results from this alternative measurement for the relationship between corporate governance and voluntary disclosure are presented in Table 6.8.

Table 6-8 Results: Relationship between corporate governance characteristics and voluntary disclosure from alternative measurement

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.860	0.070	-12.222	0.000
CEO Duality	-0.075	0.034	-2.163	0.031***
Board Size	-0.002	0.015	-0.154	0.877
Board Composition	-0.010	0.011	-0.974	0.330
Sub-committee	0.065	0.018	3.510	0.000***
Audit Committee Composition	0.022	0.011	1.912	0.056**
Foreign Ownership	0.084	0.018	4.477	0.000***
Director Ownership	-0.029	0.008	-3.340	0.000***
Institutional Ownership	-0.015	0.013	-1.152	0.249
Firm Size	0.045	0.003	14.696	0.000***
Leverage	0.000	0.000	0.357	0.720
Industry	0.046	0.013	3.436	0.000***
Firm Performance	0.000	0.003	0.104	0.916
R-squared	0.562523			
Adjusted *R*-squared	0.549028			

As for Table 6.8, CEO duality (regression coefficient is -0.075 and the *p* value is 0.031) and director ownership (regression coefficient is -0.029 and the *p* value is 0.000) have a significant negative relationship with voluntary disclosure. In contrast, sub-committee (regression coefficient is 0.065 and the *p* value is 0.000), audit committee composition (regression coefficient is 0.022 and the *p* value is 0.056) and foreign ownership (regression coefficient is 0.084 and the *p* value is 0.000) have a significant positive relationship. No significant relationship has been reported for board size (regression coefficient is -0.002 and the *p* value is 0.877), board composition (regression coefficient is -0.010 and the *p* value is 0.330) and institutional ownership (regression coefficient is -0.015 and the *p* value is 0.249). In addition, from control variables, firm size (regression coefficient is 0.045 and the *p* value is 0.000) and industry (regression coefficient is 0.046 and the *p* value is 0.000) have a significant positive relationship and no significant relationship has been reported for leverage (regression coefficient is 0.000 and the *p* value is 0.720) and firm performance (regression coefficient is 0.065 and the *p* value is 0.916). For

alternative measurement of the variables, 2SLS is also considered (see Appendix H for result) and a consistent result has been reported. Therefore, the results from the robustness test one are consistent with the main findings and further dismiss the potential endogeneity problem.

6.5.2 Robustness Test 2: Relationship between Corporate Governance Characteristics and Three Main Categories of Voluntary Disclosure

Within the literature, a significant number of prior studies examines the relationship of corporate governance characteristics and voluntary disclosure by considering individual categories including social (Haniffa & Cooke 2005; Khan et al. 2013; Mohd Ghazali 2007; Saleh et al. 2010), environmental (Brammer & Pavelin 2008; Halme & Huse 1997; Rao et al. 2012) and intellectual capital (Cerbioni & Parbonetti 2007; Li et al. 2012; Li et al. 2008). In studies from other countries, as well as Bangladesh, a varied result has been observed. Thus, further investigation will provide a strong understanding of the relationship between corporate governance characteristics and voluntary disclosure.

Hence, as a test of robustness, this study replaces voluntary disclosure (dependent variable) with social, environmental and intellectual capital disclosure individually. Research model 1 is altered into the following three models.

$$SDI_{it} = \alpha + \beta 1CD_{it} + \beta 2BS_{it} + \beta 3BC_{it} + \beta 4SC_{it} + \beta 5ACC_{it} + \beta 6FO_{it} + \beta 7DO_{it} + \beta 8INO_{it} + \beta 9FS_{it} + \beta 10IND_{it} + \beta 11LEV_{it} + \beta 12TOBINQ_{it} + \varepsilon_{it} \quad M.1.R2.1$$

$$EDI_{it} = \alpha + \beta 1CD_{it} + \beta 2BS_{it} + \beta 3BC_{it} + \beta 4SC_{it} + \beta 5ACC_{it} + \beta 6FO_{it} + \beta 7DO_{it} + \beta 8INO_{it} + \beta 9FS_{it} + \beta 10IND_{it} + \beta 11LEV_{it} + \beta 12TOBINQ_{it} + \varepsilon_{it} \quad M.1.R2.2$$

$$ICDI_{it} = \alpha + \beta 1CD_{it} + \beta 2BS_{it} + \beta 3BC_{it} + \beta 4SC_{it} + \beta 5ACC_{it} + \beta 6FO_{it} + \beta 7DO_{it} + \beta 8INO_{it} + \beta 9FS_{it} + \beta 10IND_{it} + \beta 11LEV_{it} + \beta 12TOBINQ_{it} + \varepsilon_{it} \quad M.1.R2.3$$

As on the above models, the relationship of corporate governance characteristics with social, environmental and intellectual capital disclosures are examined within pooled OLS and 2SLS. Detailed results are presented in Table 6.9.

Table 6-9 Results: Relationship of the corporate governance characteristics of with social, environmental and intellectual capital disclosure individually

	Voluntary Disclosure																	
	Social Disclosure						Environmental Disclosure						Intellectual Capital Disclosure					
	OLS			2SLS			OLS			2SLS			OLS			2SLS		
	Coefficient	*t*-Statistic	Prob.	Coefficient	*t*-Statistic	Prob.	Coefficient	*t*-Statistic	Prob.	Coefficient	*t*-Statistic	Prob.	Coefficient	*t*-Statistic	Prob.	Coefficient	*t*-Statistic	Prob.
CEO Duality	-0.083	-2.325	0.020***	-0.081	-2.263	0.024***	-0.075	-2.304	0.021***	-0.074	-2.267	0.023***	-0.058	-1.683	0.093*	-0.058	-1.661	0.097*
Board Size	-0.001	-0.091	0.927	-0.000	-0.035	0.971	0.017	1.071	0.284	0.017	1.092	0.275	-0.028	-1.339	0.181	-0.028	-1.306	0.192
Board Composition	-0.079	-1.426	0.154	-0.084	-1.493	0.136	-0.072	-1.531	0.126	-0.075	-1.575	0.116	-0.064	-0.922	0.357	-0.066	-0.950	0.342
Sub-committee	0.077	3.549	0.000***	0.072	3.366	0.000**	0.049	2.298	0.022***	0.046	2.145	0.032***	0.038	1.365	0.172	0.036	1.286	0.199
Audit Committee Composition	0.057	1.532	0.126	0.061	1.645	0.100*	0.075	2.120	0.034***	0.077	2.183	0.029***	0.079	1.769	0.077*	0.081	1.797	0.073*
Foreign Ownership	0.106	2.891	0.004***	0.094	2.513	0.012***	0.085	2.675	0.007***	0.077	2.379	0.017***	0.230	5.720	0.000***	0.224	5.425	0.000***
Director Ownership	-0.111	-4.207	0.000***	-0.173	-4.440	0.000***	-0.069	-2.790	0.005***	-0.109	-2.806	0.005***	-0.132	-4.232	0.000***	-0.160	-3.432	0.000***
Institutional Ownership	-0.081	-2.312	0.021***	-0.084	-2.411	0.016***	-0.058	-2.019	0.044***	-0.059	-2.098	0.036***	0.051	1.294	0.196	0.050	1.261	0.208
	R^2 0.519			R^2 0.514			R^2 0.476			R^2 0.473			R^2 0.481			R^2 0.480		
	Adjusted R^2 0.504			Adjusted R^2 0.499			Adjusted R^2 0.460			Adjusted R^2 0.457			Adjusted R^2 0.465			Adjusted R^2 0.464		

** Indicates statistically significant at the 5% level

*** Indicates statistically significant at the 1% level

Based on the results in Table 6.9, the relationship between corporate governance characteristics and the categories of voluntary disclosure (social, environmental, intellectual capital) are similar, with some exceptions as discussed below.

CEO duality is significantly negatively associated with social (OLS: coefficient = -0.083 and *p* value = 0.020; 2SLS: coefficient = -0.081 and *p* value = 0.024), environmental (OLS: coefficient = -0.075 and *p* value = 0.021; 2SLS: coefficient = -0.074 and *p* value = 0.023) and intellectual capital (OLS: coefficient = -0.058 and *p* value = 0.093; 2SLS: coefficient = -0.058 and *p* value = 0.097) disclosures. This finding is also consistent with the main result and provides a strong argument that CEO duality reduces the monitoring power of a firm and may reduce the transparency of a firm.

Board size is insignificantly associated with social (OLS: coefficient = -0.001 and *p* value = 0.927; 2SLS: coefficient = -0.971 and *p* value = 0.000), environmental (OLS: coefficient = 0.017 and *p* value = 0.284; 2SLS: coefficient = 0.017 and *p* value = 0.275) and intellectual capital (OLS: coefficient = -0.028 and *p* value = 0.181; 2SLS: coefficient = -0.028 and *p* value = 0.198) disclosures. This is also consistent with the main result, indicating that having more directors causes a coordination problem, or scope to emphasize or make a decision regarding voluntary disclosure.

Board composition has an insignificant relationship with social (OLS: coefficient = -0.079 and *p* value = 0.154; 2SLS: coefficient = -0.084 and *p* value = 0.136), environmental (OLS: coefficient = -0.072 and *p* value = 0.126; 2SLS: coefficient = -0.075 and *p* value = 0.116) and intellectual capital (OLS: coefficient = -0.064 and *p* value = 0.357; 2SLS: coefficient = -0.066 and *p* value = 0.342) disclosures. These findings are consistent with the main result and further suggest that independent directors might be focused on operational efficiency and not interested in voluntary disclosure. In addition, within Bangladesh, the mandatory provision to maintain a minimum number of independent directors influenced this insignificant result. In particular, in order to comply with the minimum independent director requirements of the guidelines, independent directors have less flexibility to implement their own preferences.

The presence of a sub-committee has a positive significant relationship with social (OLS: coefficient = 0.077 and p value = 0.000; 2SLS: coefficient = 0.072 and p value = 0.000;), environmental (OLS: coefficient = 0.049 and p value = 0.022; 2SLS: coefficient = 0.046 and p value = 0.032), and insignificant significant relationship with intellectual capital (OLS: coefficient = 0.038 and p value = 0.172; 2SLS: coefficient = 0.036 and p value = 0.199) disclosures. Although this finding is consistent with social and environmental disclosure, it is different for intellectual disclosure. This finding indicates that Bangladeshi firms might focus on social and environmental issues as a monitoring and controlling mechanism. In contrast, due to poor social and economic conditions, stakeholders may not be familiar with intellectual capital disclosure.

Audit committee composition has an insignificant relationship with social (OLS: coefficient = 0.057 and p value = 0.126; 2SLS: coefficient = 0.061 and p value = 0.100) but a significant positive relationship with environmental (OLS: coefficient = 0.075 and p value = 0.034; 2SLS: coefficient = 0.077 and p value = 0.029) and intellectual capital (OLS: coefficient = 0.079 and p value = 0.077; 2SLS: coefficient = 0.081 and p value = 0.073) disclosures. This finding for environmental and intellectual capital disclosures is consistent with the main result and provides strong support for the argument that independent directors on an audit committee stimulate monitoring and controlling of a firm and increase transparency. It should also be noted that due to environmental issues stakeholders might be affected by legal problems caused by pollution. In addition, for intellectual capital disclosure, investors are keen to know about the potential for value creation and reducing information asymmetry. Accordingly, audit committee composition is more concerned with environmental and intellectual capital disclosure. In contrast, an insignificant result with social disclosure supports the argument that independent directors are more concerned with legal issues and firm performance.

Foreign ownership has a significant positive relationship with social (OLS: coefficient = 0.106 and p value = 0.004; 2SLS: coefficient = 0.094 and p value = 0.012), environmental (OLS: coefficient = 0.085 and p value = 0.007; 2SLS: coefficient = 0.077 and p value = 0.017) and intellectual capital (OLS: coefficient = 0.230 and p value = 0.000; 2SLS: coefficient = 0.224 and p value = 0.000)

disclosures. This finding is also consistent with the main result and provides a strong argument that foreign investors are powerful enough to stimulate transparency as well as compliance with Western values. In addition, having foreign investors reflects the interest in operational activities and transparency of a firm.

Director ownership has significant negative relationship with social (OLS: coefficient = -0.111 and *p* value = 0.000; 2SLS: coefficient = -0.173 and *p* value = 0.000), environmental (OLS: coefficient = -0.069 and *p* value = 0.005; 2SLS: coefficient = -0.109 and *p* value = 0.005) and intellectual capital (OLS: coefficient = -0.132 and *p* value = 0.000; 2SLS: coefficient = -0.160 and *p* value = 0.000) disclosures. This finding is also consistent with the main result and provides a strong argument that director ownership may stimulate an agency problem and increase information asymmetry by ignoring voluntary disclosure. Directors are privileged to have additional access to the internal information of a firm. Thus, director ownership may facilitate the opportunistic behaviour of limiting additional information within directors only; therefore, firms disclose minimum additional information.

Institutional ownership has a significant negative relationship with social (OLS: coefficient = -0.081 and *p* value = 0.021; 2SLS: coefficient = -0.084 and *p* value = 0.016) and environmental (OLS: coefficient = -0.058 and *p* value = 0.044; 2SLS: coefficient = -0.059 and *p* value = 0.036) but an insignificant relationship with intellectual capital (OLS: coefficient = 0.051 and *p* value = 0.196; 2SLS: coefficient = 0.050 and *p* value = 0.208) disclosures. A significant negative relationship with social and environmental disclosure provides a strong argument that institutional owners are focused on firm performance and avoid additional costs or agendas like social and environmental disclosures. On the other hand, an insignificant positive relationship with intellectual capital disclosure is consistent with the main findings. Institutional owners are more interested in potential value creation activities than social and environmental issues.

Based on the above discussion, most of the corporate governance characteristics are consistently associated with voluntary disclosure as well as social, environmental and intellectual capital disclosure. However, a varied result from sub-committee, audit committee composition and institutional ownership

suggests that the emphasis on corporate governance characteristics is not unique in relation to all the categories of voluntary disclosure. Therefore, corporate governance characteristics of a firm play a significant role for voluntary disclosure while managing monitoring and controlling a firm. A summary of the findings from robustness tests one and two is presented in Table 6.10.

Table 6-10 Summary of the robustness test

	Robustness Test_1	**Robustness Test_2**		
Corporate Governance Characteristics	**Voluntary Disclosure**	**Social Disclosure**	**Environmental Disclosure**	**Intellectual Capital Disclosure**
CEO Duality	NEG &CRD	NEG &CRD	NEG &CRD	NEG &CRD
Board Size (BS)	NSR & CRD	NSR & CRD	NSR & CRD	NSR & CRD
Board Composition	NSR & CRD	NSR & CRD	NSR & CRD	NSR & CRD
Sub-committee	POS & CRD	POS & CRD	POS & CRD	NSR & NCRD
Audit Committee Composition	POS & CRD	NSR & NCRD.	POS & CRD	POS & CRD
Foreign ownership	POS & CRD	POS & CRD	POS & CRD	POS & CRD
Director Ownership	NEG &CRD	NEG &CRD	NEG &CRD	NEG &CRD
Institutional Ownership	NSR & CRD	NEG & NCRD	NEG & NCRD	NSR & NCRD

POS= Positive relationship
NEG= Negative relationship
NSR= No significant relationship
CRD= Consistent with main result
NCRD= Not Consistent with Main Result

6.6 Summary and Conclusion

This chapter reported the empirical results of whether characteristics of corporate governance act as a determinant of voluntary disclosure. Specifically, it sought to achieve three main objectives.

First, this chapter conducted some diagnostic tests including: normality, multicollinearity, heteroscedasticity and endogeneity. As a test for normality assumptions, probability–probability (P–P) plots of the dependent variable (voluntary disclosure index) and a Residual Test/Histogram–Normality test were applied and both tests suggest that the assumption of normality is not violated. Multicollinearity was checked by considering the matrix of the explanatory variables and VIF, finding no major violation of multicollinearity assumptions. By plotting standardized residuals (ZRESID) versus the standardized predicted value (ZPRED) and applying the Breusch–Pagan–Godfrey test, assumptions of heteroscedasticity were assessed, finding a concern in relation to heteroscedasticity.

By applying White’s (1980) correction technique for unknown heteroscedasticity, this issue was resolved. Finally, no endogeneity issue was observed.

Second, this chapter presents the empirical results for the eight hypotheses. Accordingly, OLS and 2SLS have been applied and a consistent result reported for both analyses. In particular, the findings suggest that CEO duality and director ownership are significantly negatively associated with voluntary disclosure. In contrast, the presence of sub-committee, audit committee composition and foreign ownership are significantly positively associated with voluntary disclosure. However, no significant relationship was found for board size and board composition. In addition, the characteristics of corporate governance, firm size and financial industry were found to be significantly positively associated with voluntary disclosure, while an insignificant relationship was observed for leverage and profitability.

Finally, this chapter discussed the tests used to check robustness. Two tests were employed to check whether the results are robust: (1) further endogeneity test; (2) voluntary disclosure was replaced with social, environmental and intellectual capital disclosures. The first robustness test, a further endogeneity test using a different measurement (dummy variable) for ownership variables, including board composition, audit composition, foreign, director and institutional ownership, was applied. Results from these tests were consistent with the main findings. The second robustness test replaced the dependent variable voluntary disclosure with three categories including social, environmental and intellectual capital disclosure. A majority of the results was consistent with the main result.

The next chapter discusses the results of the second research question: To what extent does voluntary disclosure affect firm performance in Bangladeshi listed firms? Consistent with Chapter Six, the assumptions of normality, multicollinearity, heteroscedasticity and endogeneity are applied initially, then OLS and 2SLS regression analysis is used to investigate the question. Finally, the findings from two robustness tests are presented.

Chapter Seven: Results – The Effects of Voluntary Disclosure on Firm Performance

7.1 Introduction

Chapter Six provides the findings related to the first research question: To what extent do corporate governance characteristics affect voluntary disclosure of social, environmental and intellectual capital disclosures in Bangladesh listed firms? This chapter focuses on the result of other research question: To what extent does voluntary disclosure affect firm performance in Bangladeshi listed firms?

Section 7.2 of this chapter provides details of the descriptive statistics for dependent, independent and control variables. The dependent variables include firm performance (Return on Asset, Return on Sales, Market Capitalization, Earning Per Share and Tobin's Q). The independent variable, the voluntary disclosure index (VDI) and the control variables are firm size, leverage, industry, CEO Duality and Board Composition. Consistent with Chapter Six, Section 7.3 conducts diagnostic tests, including normality, multicollinearity, heteroscedasticity and endogeneity assumptions.

Section 7.4 presents the results obtained from the statistical analyses, including OLS and 2SLS to assess the effects of voluntary disclosure to answer research question two. As an indicator of firm performance, five indicators, including ROA, ROS, MCAP, EPS and Tobin's Q, have been considered in order to assess this relationship. Then Section 7.5 discusses the robustness of the results by conducting further analysis of an additional endogeneity test and replacing the current independent variable VDI with three categories, including SDI, EDI and IDI. Finally, Section 6.6 presents a summary and conclusion of this chapter.

7.2 Descriptive Statistics

Descriptive statistics concerning research question two (research model 2) are presented in this section. Descriptive statistics report the mean, median, maximum, minimum and standard deviation for the dependent variable, independent variables and control variable and are provided in Table 7.1.

Table 7-1 Descriptive statistics for the variables of Research Model 2

Variable Category	Variables	Mean	Median	Std. Dev.	Observations
Dependent Variables	Return on Asset (ROA)	0.0473	0.0258	0.0571	402
	Return on Sales (ROS)	0.1377	0.0942	0.2566	402
	Market Capitalization (MCAP)	22.5835	22.5436	1.19687	402
	Earnings Per share (EPS)	6.0310	2.2929	1.4273	402
	Tobin's Q	1.2982	0.9831	1.2982	402
Independent Variable	VDI	0.1616	0.1375	0.1293	402
Control Variables	Firm Size	21.8904	21.8430	1.5290	402
	Leverage	1.2420	0.4674	4.3119	402
	Industry	Dummy Variable			
	CEO Duality	Dummy Variable			
	Board Composition	0.1684	0.1538	0.1130	402

As per Table 7.1, regarding the dependent variables, including ROA, ROS, MCAP, EPS and Tobin's Q, the average is 0.047, 0.1377, 22.583, 6.031 and 1.298 respectively with a median 0.025, 0.094, 22.543, 2.292 and 0.983 respectively. These results of average and median reflect that most of the firms are performing below the average. An independent variable voluntary disclosure is considered and, as per Table 7.1, the average voluntary disclosure index is 0.16 and a median of 0.13. Thus, there are very limited voluntary disclosures from the firms and most of these are small. In addition, five control variables have been considered as a control variable, including firm size, leverage industry, board composition and CEO duality, as an explanatory factor for firm performance. As per Table 7.1, average firm size is 21.89 with median 21.84. This 2.18 or 2.19 reflects that average and median firm size is 306 million as this variable is measured as a logarithm. The average for leverage is 1.24 with a median of 0.46, suggesting that a significant number of firms has debt. Descriptive statistics for industry are not considered as a dummy variable is used for measuring this variable. Average board composition is 0.15 with a median of 0.15. This suggests that the minimum requirement of independent directors on board is not yet followed. Descriptive statistics for CEO duality are not considered as a dummy variable is used for measuring this variable

7.3 Diagnostic Analyses Relating to the Assumptions of Models and Validity of Variables

Consistent with the arguments for model 1 (from Chapter Six), this chapter also applies four diagnostic tests: normality, multicollinearity, heteroscedasticity and endogeneity. Results from these assumptions are discussed below.

7.3.1 Testing for Normality

Consistent with Chapter Six, the assumptions of normality of data have been tested using probability–probability probability (P–P) plots of each dependent variable (Return on Asset, Return on Equity, Market Capitalization, Earning Per Share and Tobin's Q). The results are available in Appendix G (a). The normality assumption is further checked by considering a Residual Test/Histogram–Normality Test of the regression equation (in Appendix G (a)). Although, the result did satisfy the normality assumption completely, having a larger sample (more than 30 observations) provides the confidence that the assumption of normality should not be a concern for this study (Brooks 2008; Coakes & Steed 2001).

7.3.2 Testing for Multicollinearity

Consistent with Chapter Six, multicollinearity assumptions for model 2 have been assessed by two diagnostic tests, including implementing correlation coefficients and Variance Inflation Factor (VIF) tests. Detailed results from tests are presented in Table 7.2. As per Table 7.2, the explanatory variables are not strongly correlated (correlation coefficients less than 0.65); if correlation exceeds 0.80 this might be considered a problem (Gujarati 2003). In addition, the variance inflation factors (VIFs) of all the variables are less than 1.81, thus, there is no potential problem for this study from the VIF perspective (Dielman 2001; Gujarati 2003).

Table 7-2 Correlation coefficient matrix and Variance Inflation factor (VIF) of the explanatory variables

	Voluntary Disclosure	Firm Size	Leverage	Industry	CEO Duality	Board Composition	VIF
Voluntary Disclosure	1.000						1.817
Firm Size	0.6513	1.000000					1.740
Leverage	-0.034271	-0.063422	1.000000				1.008
Industry	0.314455	0.263263	0.039962	1.000000			1.185
CEO Duality	-0.145399	-0.048451	-0.034146	-0.114898	1.000000		1.034
Board Composition	-0.074367	-0.111795	0.052050	-0.231062	-0.027074	1.000000	1.073

7.3.3 Testing for Heteroscedasticity

Consistent with Chapter Six, the assumption of heteroscedasticity is assessed by considering two tests. The first test is conducted by plotting standardized residuals (ZRESID) versus the standardized predicted value (ZPRED). Based on the results of each dependent variable (see Appendix G (b) for result), the heteroscedasticity problem cannot be dismissed. Second, a further assessment for heteroscedasticity is conducted by using the Breusch–Pagan–Godfrey test. Accordingly, for every dependent variable for model 2, the results of the Breusch–Pagan–Godfrey test are discussed in Tables 7.3 to 7.7.

As per Table 7.3, ROA is the dependent variable for model 2 and chi-square for observed *R* square is significant (.00031). Accordingly, the chi-square statistics and corresponding *p*-value of the Breusch–Pagan–Godfrey test suggest that heteroscedasticity is present in the model.

Table 7-3 Heteroscedasticity test: Breusch-Pagan-Godfrey (ROA)

F-statistic	3.393089	Prob. F(6,395)	0.0028
Obs**R*-squared	19.70378	Prob. Chi-Square(6)	0.0031
Scaled explained SS	107.6352	Prob. Chi-Square(6)	0.0000

As per Table 7.4, ROS is the dependent variable for model 2 and chi-square for observed *R* square is insignificant (.2789). Accordingly, the chi-square statistics and corresponding *p*-value of the Breusch–Pagan–Godfrey test rejects that heteroscedasticity is present in the model.

Table 7-4 Heteroscedasticity test: Breusch-Pagan-Godfrey (ROS)

F-statistic	1.247837	Prob. F(6,395)	0.2809
Obs**R*-squared	7.477961	Prob. Chi-Square(6)	0.2789
Scaled explained SS	208.7273	Prob. Chi-Square(6)	0.0000

As per Table 7.5, MCAP is the dependent variable for model 2 and chi-square for observed *R* square is significant (.0000). Accordingly, the chi-square statistics and corresponding *p*-value of the Breusch–Pagan–Godfrey test suggest that heteroscedasticity is present in the model.

Table 7-5 Heteroscedasticity test: Breusch-Pagan-Godfrey (MCAP)

F-statistic	5.746716	Prob. F(6,395)	0.0000
Obs**R*-squared	32.27407	Prob. Chi-Square(6)	0.0000
Scaled explained SS	43.36571	Prob. Chi-Square(6)	0.0000

As per Table 7.6, EPS is the dependent variable for model 2 and chi-square for observed *R* square is significant (.0000). Accordingly, the chi-square statistics and corresponding *p*-value of the Breusch–Pagan–Godfrey test suggest that heteroscedasticity is present in the model.

Table 7-6 Heteroscedasticity test: Breusch-Pagan-Godfrey (EPS)

F-statistic	8.056552	Prob. F(6,395)	0.0000
Obs**R*-squared	43.83190	Prob. Chi-Square(6)	0.0000
Scaled explained SS	401.8503	Prob. Chi-Square(6)	0.0000

As per Table 7.7, Tobin's Q is the dependent variable for model 2 and chi-square for observed *R* square is significant (.00113). Accordingly, the chi-square statistics and corresponding *p*-value of the Breusch–Pagan–Godfrey test suggest that heteroscedasticity is present in the model.

Table 7-7 Heteroscedasticity test: Breusch-Pagan-Godfrey (Tobin's Q)

F-statistic	2.816214	Prob. F(6,395)	0.0107
Obs**R*-squared	16.49127	Prob. Chi-Square(6)	0.0113
Scaled explained SS	130.2424	Prob. Chi-Square(6)	0.0000

Therefore, as per the results from Tables 7.3 to 7.7, there is a concern in relation to heteroscedasticity for all the models except for ROS as a dependent variable. In addition, concern was also observed from initial graphs.

Consistent with Chapter Six, the presence of heteroscedasticity is corrected by using White's (1980) correction technique for unknown heteroscedasticity and this approach is consistent with prior studies (Rashid 2015a, 2015b, 2015c).

7.3.4 Testing for Endogeneity

An endogeneity test for the predicted value for the independent variable (voluntary disclosure) was checked against each dependent variable (firm performance indicator) (see Appendix G (c) for result).

The F test for the predicted value of voluntary disclosure is insignificant for each indicator: ROA ($F = 0.58$ and relevant p value = 0.4482), ROS ($F = 7.60$ and relevant p value = 0.006, Market Capitalization ($F = 1.52$ and relevant p value = 0.2188), EPS ($F = 0.31$ and relevant p value = 0.5770) and Tobin's Q ($F = 1.24$ and relevant p value = 0.265). Therefore, an insignificant P value dismisses the potential endogeneity problem for all the firm performance indicators except for ROS. Detailed results of the endogeneity test are in Appendix G**.**

7.4 Results: The Effects of Voluntary Disclosure on Firm performance

After addressing the basic assumptions, this study proceeds to investigate the effects of voluntary disclosures on firm performance indicators including ROA, ROS, MCAP, EPS and Tobin's Q along with five control variables: firm size, leverage, industry, CEO duality and board composition. Accordingly, five sub-research models have been considered for research model two and the results of each sub-model are discussed in Sub-sections 7.4.1 to 7.4.5, while Sub-section 7.4.6 presents the results for the control variables regarding all the sub-models for the second research model.

7.4.1 Results: The effects of Voluntary Disclosure on Return on Assets

As a firm performance indicator, ROA is considered to examine the effects of voluntary disclosure on firm performance and the research model is as follows,

$$ROA_{it+1} = \alpha + \beta 1VDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \quad (2.1)$$

Based on research model 2.1, the detailed results from OLS and 2SLS are presented in Table 7.8.

Table 7-8 Results: The effects of voluntary disclosure on Return on Asset

Independent Variables	Return on Asset					
	OLS			2SLS		
	Coefficient	*t*-Statistic	Prob.	Coefficient	*t*-Statistic	Prob.
Voluntary Disclosure	0.092	3.777	0.000***	0.093	3.842	0.000***
Firm Size	0.001	0.803	0.421	0.001	0.768	0.442
Leverage	-0.000	-1.749	0.081	-0.000	-1.772	0.077
Industry	-0.066	-12.780	0.000***	-0.067	-11.949	0.000***
CEO Duality	-0.039	-5.591	0.000***	-0.039	-5.575	0.000***
Board Composition	-0.016	-0.814	0.415	-0.037	-0.823	0.411
	R^{2-} 0.292			R^2 0.294		
	Adjusted R^2 0.281			Adjusted R^2 0.283		

** Indicates statistically significant at the 5% level
*** Indicates statistically significant at the 1% level

Regarding the effects of voluntary disclosure on ROA, OLS reports that the regression coefficient is 0.092 and the *p* value is 0.000. In addition, as on 2SLS the regression coefficient is 0.093 and the *p* value is 0.000. Therefore, voluntary disclosures have a significant positive effect on ROA. Accordingly, hypothesis 2(a) is supported and hypothesis 2(a) is not rejected. In addition, the adjusted R^2 for OLS is 28.16% and 2SLS is 28.33%. This indicates that the independent and control variables explain 28% of the variation in the effects of voluntary disclosure. It should also be noted that the explanatory power is higher than the prior studies (Garay et al. 2013; Mishra & Suar 2010).

7.4.2 Results: The Effects of Voluntary Disclosure on Return on Sales

As a firm performance indicator, ROS is considered to examine the effects of voluntary disclosure on firm performance and the research model is as follows,

$$ROS_{it+1} = \alpha + \beta 1VDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \quad (2.2)$$

Based on research model 2.2, the detailed results from OLS and 2SLS are presented in Table 7.9.

Table 7-9 Results: The effects of voluntary disclosure on Return on Sales

Independent Variables	Return on Sales					
	Pooled OLS			2SLS		
	Coefficient	*t*-Statistic	Prob.	Coefficient	*t*-Statistic	Prob.
Voluntary Disclosure	0.146	1.242	0.214	0.156	1.318	0.188
Firm Size	-0.035	-2.918	0.003***	-0.035	-2.992	0.002***
Leverage	-0.001	-0.945	0.345	-0.001	-0.706	0.480
Industry	-0.015	-0.616	0.538	-0.014	-0.514	0.607
CEO Duality	-0.054	-2.036	0.042***	-0.051	-1.980	0.048***
Board Composition	-0.094	-1.304	0.192	-0.155	-0.610	0.541
	R^{2-} 0.032			R^2 0.029		
	Adjusted R^2 0.017			Adjusted R^2 0.015		

** Indicates statistically significant at the 5% level
*** Indicates statistically significant at the 1% level

Regarding the effects of voluntary disclosure on ROS, OLS reports that the regression coefficient is 0.146 and the *p* value is 0.214. In addition, as on 2SLS the regression coefficient is 0.156 and the *p* value is 0.188. Therefore, voluntary disclosures have an insignificant positive effect on ROS. Accordingly, hypothesis 2(b) is not supported and hypothesis 2(b) is rejected. In addition, the adjusted R^2 for OLS is 1.78% and 2SLS is 1.15%. This indicates that the independent and control variables explain 1% (approximately) only of the variation in the effects of voluntary disclosure. Therefore, a low R^2 and the concern of endogeneity reflects that there might be some other significant contingent factors that may act as an explanatory variable for ROS.

7.4.3 Results: The Effects of Voluntary Disclosure on Market Capitalization

As a firm performance indicator, MCAP is considered to examine the effects of voluntary disclosure on firm performance and the research model is as follows,

$$MCAP_{it+1} = \alpha + \beta 1VDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \quad (2.3)$$

Based on research model 2.3, the detailed result from OLS and 2SLS are presented in Table 7.10.

Table 7-10 Results: The effects of voluntary disclosure on Market Capitalization

Independent Variables	Market Capitalization					
	Pooled OLS			2SLS		
	Coefficient	*t*-Statistic	Prob.	Coefficient	*t*-Statistic	Prob.
Voluntary Disclosure	2.308	5.559	0.000***	2.364	5.710	0.000***
Firm Size	0.482	15.64	0.000***	0.481	15.507	0.000***
Leverage	-0.019	-5.433	0.000***	-0.017	-5.628	0.000***
Industry	-0.185	-2.384	0.017***	-0.199	-2.289	0.022***
CEO Duality	-0.285	-1.072	0.284	-0.281	-1.038	0.299
Board Composition	-0.532	-1.796	0.073	-1.043	-1.444	0.149
	R^{2-} 0.638			R^2 0.647		
	Adjusted R^2 0.633			Adjusted R^2 0.642		

** Indicates statistically significant at the 5% level
*** Indicates statistically significant at the 1% level

Regarding the effects of voluntary disclosure on MCAP, OLS reports that the regression coefficient is 2.308 and the *p* value is 0.000. In addition, as on 2SLS the regression coefficient is 2.364 and the *p* value is 0.000. Therefore, voluntary disclosures have a significant positive effect on MCAP. Accordingly, hypothesis 2(c) is supported and hypothesis 2(c) is not rejected. In addition, the adjusted R^2 for OLS is 63.31% and 2SLS is 64.24%. This indicates that the independent and control variables explain 63% of the variation in the effects of voluntary disclosure. It should also be noted that the explanatory power is higher than prior studies (Abdolmohammadi 2005; Anam et al. 2011; Uyar & Kılıç 2012) and a higher R^2 reflects that voluntary disclosure plays a crucial role for MCAP within the Bangladeshi context.

7.4.4 Results: The Effects of Voluntary Disclosure on Earnings per Share

As a firm performance indicator, EPS is considered to examine the effects of voluntary disclosure on firm performance and the research model is as follows,

$$EPS_{it+1} = \alpha + \beta 1VDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \quad (2.4)$$

Based on research model 2.4, the detailed result from OLS and 2SLS have been presented in Table 7.11.

Table 7-11 Results: The effects of voluntary disclosure on Earning Per Share

Independent Variables	Earnings per Share					
	Pooled OLS			2SLS		
	Coefficient	*t*-Statistic	Prob.	Coefficient	*t*-Statistic	Prob.
Voluntary Disclosure	26.671	3.112	0.002***	26.591	3.131	0.001***
Firm Size	1.008	2.746	0.006***	1.005	2.772	0.005***
Leverage	-0.059	-0.720	0.471	-0.060	-0.711	0.477
Industry	-9.249	-6.717	0.000***	-9.268	-6.691	0.000***
CEO Duality	-3.656	-2.516	0.012***	-3.694	-2.447	0.014***
Board Composition	1.770	0.472	0.637	1.785	0.183	0.854
	R^{2-} 0.203			R^2 0.2029		
	Adjusted R^2 0.1909			Adjusted R^2 0.1907		

** Indicates statistically significant at the 5% level
*** Indicates statistically significant at the 1% level

Regarding the effects of voluntary disclosure on EPS, OLS reports that the regression coefficient is 26.671 and the p value is 0.002. In addition, as on 2SLS the regression coefficient is 26.591 and the p value is 0.001. Therefore, voluntary disclosures have a significant positive effect on EPS. Accordingly, hypothesis 2(d) is supported and hypothesis 2(d) is not rejected. In addition, the adjusted R^2 for OLS is 19.09% and 2SLS is 19.07%. This indicates that the independent and control variables explain 19% of the variation in the effects of voluntary disclosure.

7.4.5 Results: The Effects of Voluntary Disclosure on Tobin's Q

As a firm performance indicator, Tobin's Q is considered to examine the effects of voluntary disclosure on firm performance and the research model is as follows,

$$TOBIQ_{it+1} = \alpha + \beta 1VDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \qquad (2.5)$$

Based on research model 2.4, the detailed results from OLS and 2SLS are presented in Table 7.12.

Table 7-12 Results: The effects of voluntary disclosure on Tobin's Q

Independent Variables	Tobin's Q					
	Pooled OLS			2SLS		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
Voluntary Disclosure	2.099	3.624	0.000***	2.045	3.502	0.000***
Firm Size	-0.197	-3.361	0.000***	-0.181	-2.973	0.003***
Leverage	-0.007	-1.664	0.096*	-0.009	-1.668	0.095*
Industry	-1.466	-12.923	0.000***	-1.315	-12.152	0.000***
CEO Duality	-0.989	-5.964	0.000***	-0.868	-5.468	0.000***
Board Composition	-0.014	-0.029	0.976	2.353	1.976	0.048***
	R^{2-} 0.272			R^2 0.241		
	Adjusted R^2 0.261			Adjusted R^2 0.230		

** Indicates statistically significant at the 5% level
*** Indicates statistically significant at the 1% level

Regarding the effects of voluntary disclosure on Tobin's Q, OLS reports that the regression coefficient is 2.099 and the p value is 0.000. In addition, as on 2SLS the regression coefficient is 02.045 and the p value is 0.000. Therefore, voluntary disclosures have a significant positive effect on Tobin's Q. Accordingly, hypothesis 2(e) is supported and hypothesis 2(e) is not rejected In addition, the adjusted R^2 for OLS is 26.19% and 2SLS is 23.01%. This indicates that the independent and control variables explain 23% (approximate) of the variation in the effects of voluntary disclosure. It should also be noted that explanatory power is higher than in prior studies (Garay et al. 2013; Lima Crisóstomo et al. 2011).

7.4.6 Results: The Effects of Control Variables on Firm Performance Indicators

Firm Size has a mixed effect on the five firm performance indicators. There is a positive effect on the market-based firm performance indicators including market capitalization (OLS: coefficient = 0.482 and p value = 0.000; 2SLS: coefficient = 0.481 and p value = 0.000) and Earnings per Share (OLS: coefficient = 1.008 and p value = 0.006; 2SLS: coefficient = 1.005 and p value = 0.005). Investors might favour larger firms. Thus, larger firms receive a better response from the market. In contrast, larger-sized firms also require a higher amount of return to cover their larger costs. Thus, there might be a negative or insignificant effect from firm size to accounting or mixed indicators. Consistent with this argument, firm size might have a negative effect on ROS (OLS: coefficient = -0.035 and p value = 0.003; 2SLS: coefficient = -0.035 and p value = 0.002), Tobin's Q (OLS: coefficient = -0.197 and p value = 0.000; 2SLS: coefficient = -0.181 and p value = 0.003) where no significant effect has been revealed for ROA (OLS:

coefficient = 0.001 and *p* value = 0.421; 2SLS: coefficient =0.001 and *p* value = 0.442).

Leverage reveals the debt structure of a firm. Accordingly, higher leverage may incur an increased cost of capital for the firm and may have a negative effect on firm performance. In addition, having more debt might be a concern for investors. Consist with this perception, a negative relationship has been demonstrated for ROA (OLS: coefficient = -0.000 and *p* value = 0.081; 2SLS: coefficient = -0.000 and *p* value = 0.077), MCAP (OLS: coefficient = -0.019 and *p* value = 0.000; 2SLS: coefficient = -0.017 and *p* value = 0.000) and Tobin's Q (OLS: coefficient = -0.007 and *p* value = 0.096; 2SLS: coefficient = -0.009 and *p* value = 0.095). In contrast, no effect has been revealed for ROS (OLS: coefficient = -0.001 and *p* value = 0.345; 2SLS: coefficient = -0.001 and *p* value = 0.480) and EPS (OLS: coefficient = -0.059 and *p* value = 0.471; 2SLS: coefficient = -0.060 and *p* value = 0.477). This mixed finding may be explained by the fact that the calculation process of every firm performance indicator is not unique. Thus, cost of leverage may not have a consistent effect on every indicator.

Financial industry has a negative relationship with firm performance indicators including ROA (OLS: coefficient = -0.066 and *p* value = 0.000; 2SLS: coefficient = -0.067 and *p* value = 0.000), MCAP (OLS: coefficient = -0.185 and *p* value = 0.017; 2SLS: coefficient = -0.199 and *p* value = 0.022), EPS (OLS: coefficient = -9.249 and *p* value = 0.000; 2SLS: coefficient = -9.268 and *p* value = 0.000) and Tobin's Q (OLS: coefficient = -1.466 and *p* value = 0.000; 2SLS: coefficient = -1.315 and *p* value = 0.000), but not ROS (OLS: coefficient = -0.015 and *p* value = 0.5381; 2SLS: coefficient = -0.014 and *p* value = 0.607). This negative effect for the financial industry can be explained by this industry being subject to extra monitoring as a requirement for additional capital. Due to extra monitoring, additional cost might be incurred for this industry and that may lead to an adverse effect on firm performance. Therefore, firms in financial services may struggle to develop firm performance compared to other industries. In addition, an insignificant relationship with ROS might occur because the financial industry is services oriented and it may be difficult to relate sales to cost of sales.

CEO duality primarily has a negative relationship with firm performance indicators including ROA (OLS: coefficient = -0.039 and p value = 0.000; 2SLS: coefficient = -0.039 and p value = 0.000), ROS (OLS: coefficient = -0.054 and p value = 0.042; 2SLS: coefficient = -0.051 and p value = 0.048), EPS (OLS: coefficient = -3.656 and p value = 0.012; 2SLS: coefficient = -3.694 and p value = 0.014) and TOBIN'S Q (OLS: coefficient = -0.989 and p value = 0.000; 2SLS: coefficient = -0.868 and p value = 0.000), but not MCAP (OLS: coefficient = -0.285 and p value = 0.284; 2SLS: coefficient = -0.281 and p value = 0.299). This negative effect may mean that having this leadership structure is not recognised by stakeholders due to a lack of transparency. In addition, according to the recommendations of the BSEC, firms should avoid this leadership style. However, an insignificant effect on MCAP may occur due to poor socio-economic conditions and a lack of concern regarding this leadership structure. Therefore, CEO duality has a minimal effect on MCAP.

Board composition mostly does not have a significant relationship with the firm performance indicators, including ROA (OLS: coefficient = -0.016 and p value = 0.415; 2SLS: coefficient = -0.037 and p value = 0.411), ROS (OLS: coefficient = -0.094 and p value = 0.192; 2SLS: coefficient = -0.155 and p value = 0.541) and EPS (OLS: coefficient = 1.770 and p value = 0.637; 2SLS: coefficient = 1.785 and p value = 0.854). This insignificant result may be a result of the new corporate governance guidelines to maintain one third independent directors. Thus, board composition from an independent director perspective is less a matter of choice but rather compliance with the regulatory guideline. However, a contradictory result has been observed for MCAP (OLS: coefficient = -0.532 and p value = 0.0733; 2SLS: coefficient = -1.043 and p value = 0.149) and Tobin's Q (OLS: coefficient = -0.014 and p value = 0.976; 2SLS: coefficient = -2.359 and p value = 0.048) as the results of OLS and 2SLS are not consistent. Although for both indicators only one statistical result is significant, it can be concluded that mostly, there is no significant relationship between firm performance and board composition within the Bangladeshi context. Therefore, consistent with the argument of compliance, it can also be explained that firm performance might not be directly moderated by board composition and there might be some other contingent factor that acts as an explanatory variable for such a relationship.

7.4.7 Overall Findings: The Effects of Voluntary Disclosure on Firm Performance

The results of the effects from voluntary disclosures on firm performance are provided above in Sub-sections 7.4.1 to 7.4.5. A summary of all the sub-hypotheses regarding hypothesis two and their status is presented in Table 7.13.

Table 7-13 Summary of all the sub-hypotheses for Hypothesis Two

Hypotheses			**Expected Result**	**Results**		**Hypothesis Rejected/ Not Rejected**
				Based on OLS	**Based on 2SLS**	
Hypothesis 2	**Hypothesis 2(a):**	Corporate Voluntary Disclosure is positively associated with Return on Asset	Positive Relationship	Positive Relationship	Positive Relationship	Not Rejected
	Hypothesis 2(b):	Corporate Voluntary Disclosure is positively associated with Return on Sales	Positive Relationship	No Significant Relationship	No Significant Relationship	Rejected
	Hypothesis 2(c):	Corporate Voluntary Disclosure is positively associated with Market Capitalization	Positive Relationship	Positive Relationship	Positive Relationship	Not Rejected
	Hypothesis 2(d):	Corporate Voluntary Disclosure is positively associated with Earning per Share.	Positive Relationship	Positive Relationship	Positive Relationship	Not Rejected
	Hypothesis 2(e):	Corporate Voluntary Disclosure is positively associated with Tobin's Q	Positive Relationship	Positive Relationship	Positive Relationship	Not Rejected

7.5 Robustness Check

Based on the findings from model 2, the voluntary disclosure of a firm has significant positive effects on the following year firm performance. Consistent with Chapter Six, two robustness tests have been applied. Initially, a further endogeneity test was applied as robustness test one. Then as a second robustness test, from the second research model (sub-models), the independent variable voluntary disclosure is replaced with each category: social, environmental and intellectual capital. Detailed results of each test are discussed below.

7.5.1 Robustness Test 1: Additional Endogeneity Test

Regarding the relationship between firm performance and corporate voluntary disclosure, reverse causality is a concern. It is also documented that firm

performance can influence corporate voluntary disclosure (Haniffa & Cooke 2005; Khan et al. 2013). This study used a lagged approach to voluntary disclosure to avoid a causality problem. In addition, a further endogeneity (reverse causality) check was implemented with a simple crossed-lagged regression model consistent with Davidson et al. (1997) and Rashid (2015a). In so doing, the following ten models have been considered:

$$ROA_{it+1} = \alpha + \beta 1ROA_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \dots M2.R1.1$$

$$ROS_{it+1} = \alpha + \beta 1ROA_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \dots M2.R1.2$$

$$MCAP_{it+1} = \alpha + \beta 1MCAP_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \dots M2.R1.3$$

$$EPS_{it+1} = \alpha + \beta 1EPS_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \dots M2.R1.4$$

$$TOBINQ_{it+1} = \alpha + \beta 1TOBINQ_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \dots M2.R1.5$$

$$VDI_{it+1} = \alpha + \beta 1ROA_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \dots M2.R1.6$$

$$VDI_{it+1} = \alpha + \beta 1ROS_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \dots M2.R1.7$$

$$VDI_{it+1} = \alpha + \beta 1MCAP_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \dots M2.R1.8$$

$$VDI_{it+1} = \alpha + \beta 1EPS_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \dots M2.R1.9$$

$$VDI_{it+1} = \alpha + \beta 1TOBINQ_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \dots M2.R1.10$$

Within the first five equations (M2.R1.1 to M2.R1.5), the following year firm performance is considered as a dependent variable over current year voluntary disclosure, firm performance and other control variables. In the following five

equations, following year voluntary disclosure is considered as dependent by considering current year firm performance and social disclosure as independent variables.

For the first five equations (see Appendix I for detailed results), current year firm performance (ROA = regression coefficient is 0.757 and the *p* value is 0.000, ROS = regression coefficient is 0.777 and the *p* value is 0.000, MCAP = regression coefficient is 0.937 and the *p* value is 0.000, EPS = regression coefficient is 1.102 and the *p* value is 0.000, and Tobin's Q = regression coefficient is 0.753 and the *p* value is 0.000) is significantly associated with future firm performance. Detailed results are in Appendix I. These findings are consistent with prior studies (Khlif et al. 2015; Veronica & Bachtiar 2010) and support the concept that having better performance may continue to impact the following year.

However, based on the results of the last five equations (see Appendix I for detailed results), current year firm performance is not found to affect the following year corporate voluntary disclosure (ROA = regression coefficient is .005 and the *p* value is 0.775; MCAP = regression coefficient is .001 and the *p* value is 0.517; EPS = regression coefficient is 9.430 and the *p* value is 0.606; Tobin's Q = regression coefficient is 0.000 and the *p* value is 0.813; except for ROS = regression coefficient is 0.005 and the *p* value is 0.081); detailed results are in Appendix I. Therefore, it can be concluded that for most of the firm performance indicators there is no reverse casualty problem. Regarding ROS, a reverse casualty problem and endogeneity issue has already been expressed for this indicator in the earlier analysis. In addition, an insignificant result is consistent with the argument that within a developing country like Bangladesh sales return might be not affected by additional disclosure.

7.5.2 Robustness Test 2: The Effects of Three Main Categories of Voluntary Disclosure on Firm Performance

A significant number of prior studies examine the effects of specific categories of voluntary disclosure, including social (Haniffa & Cooke 2005; Khan et al. 2013; Mohd Ghazali 2007; Saleh et al. 2010), environmental (Brammer & Pavelin 2008; Halme & Huse 1997; Rao et al. 2012) and intellectual capital (Cerbioni & Parbonetti 2007; Li et al. 2012; Li et al. 2008) both in Bangladesh and

other country contexts. Thus, for the purposes of robustness, this study replaces voluntary disclosure (dependent variable) with social, environmental and intellectual capital disclosure. Fifteen different models have been developed for every category of disclosure and the results for the models are presented in Table 7.14.

$$ROA_{it+1} = \alpha + \beta 1SDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots\dots\dots. M2.R2.1$$

$$ROS_{it+1} = \alpha + \beta 1SDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots\dots\dots. M2.R2.2$$

$$MCAP_{it+1} = \alpha + \beta 1SDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots\dots\dots. M2.R2.3$$

$$EPS_{it+1} = \alpha + \beta 1SDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \ + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots\dots\dots. M2.R2.4$$

$$TOBIQ_{it+1} = \alpha + \beta 1SDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots\dots\dots. M2.R2.5$$

$$ROA_{it+1} = \alpha + \beta 1EDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots\dots\dots. M2.R2.6$$

$$ROS_{it+1} = \alpha + \beta 1EDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots\dots\dots. M2.R2.7$$

$$MCAP_{it+1} = \alpha + \beta 1EDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots\dots\dots. M2.R2.8$$

$$EPS_{it+1} = \alpha + \beta 1EDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots\dots\dots. M2.R2.9$$

$$TOBIQ_{it+1} = \alpha + \beta 1EDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots\dots. M2.R2.10$$

$$ROA_{it+1} = \alpha + \beta 1ICDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots\dots. M2.R2.11$$

$$ROS_{it+1} = \alpha + \beta 1ICDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots\dots. M2.R2.12$$

$$MCAP_{it+1} = \alpha + \beta 1ICDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots\dots. M2.R2.13$$

$$EPS_{it+1} = \alpha + \beta 1ICDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots\dots. M2.R2.14$$

$$TOBIQ_{it+1} = \alpha + \beta 1ICDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \dots\dots. M2.R2.15$$

Table 7-14 Results: The individual effects of social, environmental and intellectual capital disclosure on firm performance

	Return on Asset (ROA)		Return on Sales (ROS)		Market Capitalization (MCAP)		Earnings per Share (EPS)		Tobin's Q	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
Social Disclosure	0.058	0.019***	0.045	0.640	1.560	0.000***	20.262	0.003***	1.385	0.025***
Environmental Disclosure	0.041	0.189	0.176	0.225	2.490	0.000***	15.609	0.1441	0.933	0.256
Intellectual Capital Disclosure	0.093	0.000***	0.125	0.078*	1.434	0.000***	22.218	0.000***	2.099	0.000***

Based on the results of Table 7.14 (see Appendix J for detailed results), social disclosure has a positive effect on all the firm performance indicators (ROA = regression coefficient is .058 and the *p* value is 0.019; MCAP = regression coefficient is 1.560 and the *p* value is 0.000; EPS = regression coefficient is 20.262 and the *p* value is 0.003; Tobin's Q = regression coefficient is 1.385 and the *p* value is 0.025, with the exception of ROS = regression coefficient is 0.045 and the *p* value is 0.640). This finding is also consistent with the main findings of this study. In addition, a positive effect from social disclosure to firm performance is also consistent with a large number of prior studies (Ahamed et al. 2014; Chen & Wang 2011; Choi et al. 2010; Mishra & Suar 2010; Prado-Lorenzo et al. 2008; Veronica & Bachtiar 2010). Within the Bangladeshi context, a positive effect from social disclosure to firm performance may mean that stakeholders are concerned with social issues, which leads to improved firm performance. Accordingly, in recent times an improved emphasis on social issues in Bangladesh (Sobhani et al. 2009) also justifies this positive effect.

Based on the results in Table 7.14, an insignificant effect on firm performance from environmental disclosure is identified (ROA = regression coefficient is .041 and the *p* value is 0.189; ROS = regression coefficient is 0.176 and the *p* value is 0.225; EPS = regression coefficient is 15.609 and the *p* value is 0.144; Tobin's Q = regression coefficient is .933 and the *p* value is 0.256, with the exception of MCAP = regression coefficient is 2.490 and the *p* value is 0.000). This result might be explained by a lack of environmental awareness among stakeholders within Bangladesh (Hoque & Clarke 2013; Hossain et al. 2012; Islam 2008). As a result, due to poor socio-economic conditions and overpopulation, firms may not access a better return compared to the cost of environmental issues. Similarly, local

stakeholders are not sufficiently influential to demand that firms address environmental issues. Consistent with this argument, less emphasis on environmental information has been observed in Bangladesh (Belal et al. 2010) due to lack of enforcement from regulatory authorities (Hossain et al. 2012). In addition, in Chapter Six it was reported that institutional ownership is negatively associated with environmental disclosure because this form of ownership is primarily interested in firm performance. Therefore, an insignificant effect on almost every firm performance indicator return supports that these forms of investors ignore environmental information as there is no compensation from a firm performance perspective. However, a positive effect on market capitalization suggests that society in general values environmental disclosure. Thus, a lack of monitoring of environmental issues might be the reason for this result.

Based on the results in Table 7.14, intellectual capital disclosure has a positive effect on firm performance (ROA = regression coefficient is .093 and the *p* value is 0.000; ROS = regression coefficient is 0.125 and the *p* value is 0.078; MCAP = regression coefficient is 1.434 and the *p* value is 0.000; EPS = regression coefficient is 22.218 and the *p* value is 0.000; Tobin's Q = regression coefficient is 2.099 and the *p* value is 0.000). This finding is also consistent with the main findings of this study. In addition, a positive effect from intellectual capital disclosure to firm performance is also consistent with prior studies (Abdolmohammadi 2005; Anam et al. 2011; Ribeiro Soriano et al. 2012). This result might be explained by the potential for intellectual capital disclosure to reveal potential value creation and the intangible assets of a firm. Thus, stakeholders might consider additional disclosure as a positive signal. Accordingly, disclosure related to intellectual capital has a positive effect on firm performance in a positive manner.

7.6 Summary and Conclusion

This chapter reported the empirical results of whether there is an effect from voluntary disclosure to firm performance by considering five indicators: ROA, ROS, MCAP, EPS and Tobin's Q. Specifically, it achieved three main objectives.

First, consistent with Chapter Six, this chapter also conducted some diagnostic tests including normality, multicollinearity, heteroscedasticity and

endogeneity. To test for normality assumptions, probability–probability (P–P) plots of the dependent variable (voluntary disclosure index) and a Residual Test/Histogram–Normality test were applied and both tests suggest that the assumption of normality is not violated. Multicollinearity was checked by considering the matrix of the explanatory variables and VIF. Results ensured that there were no major violations of multicollinearity assumptions. By plotting standardized residuals (ZRESID) versus the standardized predicted value (ZPRED) and applying the Breusch–Pagan–Godfrey test, assumptions of heteroscedasticity were assessed and a concern in relation to heteroscedasticity was revealed. By applying White's (1980) correction technique for unknown heteroscedasticity, this issue was resolved. Finally, no endogeneity issue was observed for all the firm performance indicators: ROA, MCAP, EPS and Tobin's Q, except for ROS.

Second, similar to Chapter Six, this chapter applied OLS and 2SLS for examining the effects of voluntary disclosure on firm performance by investigating five sub-hypotheses developed for research model two. A significant positive effect for ROA, MCAP, EPS and Tobin's Q were found except for ROS. For insignificant indicator ROS, the previous section already outlined the concern for endogeneity test that also discounts ROS. Accordingly, a consistent result from the perspective of most of the firm performance indicators leads to the conclusion that, in Bangladesh, voluntary disclosure has a significant positive effect on firm performance.

Finally, this chapter discussed the tests used to check robustness. Two tests were employed to check whether the results are robust: (1) a further endogeneity test regarding reverse causality; (2) the independent variable voluntary disclosure was replaced with social, environmental and intellectual capital disclosures individually. First, a robustness test reported that there is no concern for reverse causality, thus further ensuring that there is no concern for endogeneity. For the second robustness test aimed at understanding the effects of voluntary disclosure on firm performance and social and intellectual capital disclosure, a significant positive effect on firm performance was observed. In contrast, no significant effect was revealed for environmental disclosure and firm performance, except for MCAP. A likely explanation is that stakeholders may be aware of social and

intellectual capital disclosures but have limited or no awareness of environmental disclosure.

Based on the result of various statistical analyses, the result of the effects of voluntary disclosure on firm performance can be considered strong and rigorous. This study addresses basic statistics assumptions, including normality, multicollinearity, heteroscedasticity and endogeneity, to ensure a bias free result.

In the next chapter, the results of Chapters Six and Seven are summarized and discussed, along with providing a conclusion for this thesis. More specifically, the chapter summarizes and discusses the results regarding the determinants of voluntary disclosure and the effects of voluntary disclosures on firm performance. Then, it presents a summary for the policy implications from the findings and highlights the contributions from the study. Finally, it addresses the limitations of this study and suggests some avenues for future study.

Chapter Eight: Discussion and Conclusions

8.1 Introduction

This study investigates the determinants and effects of corporate voluntary disclosures of social, environmental and intellectual capital (voluntary disclosure) with an emphasis on corporate governance characteristics and firm performance within a Bangladeshi context. More precisely, this study combines three significant forms of voluntary disclosure – social, environmental and intellectual capital – to gain a more complete understanding. To explore the determinants of voluntary disclosures the study examines the relationship between corporate governance characteristics and voluntary disclosure. In addition, the effects of voluntary disclosures on firm performance have also been examined. To achieve these objectives, the thesis used quantitative methods along with a comprehensive theoretical framework for a developing country context. The findings of this study contribute to an in-depth understanding for policymakers and regulatory bodies from Bangladesh as well as other developing countries, for example, the BSEC, the Stock Exchanges, The Institute of Cost and Management Accountants of Bangladesh, Bangladesh Enterprise Institute and Bangladesh Bank with regard to enhancing transparency by considering voluntary disclosures

This chapter has two primary objectives. *First*, it reiterates key results along with a detailed discussion and elaborates the contributions and limitations of this thesis. *Second,* it offers suggestions for future research.

This chapter is organized as follows. Section 8.2 provides an overview of the thesis. Section 8.3 presents a detailed discussion of the results of the relationship between corporate governance characteristics and voluntary disclosures. Discussion of the results of the effects of voluntary disclosure on firm performance are presented in Section 8.4. Section 8.5 addresses the contributions of the study. Section 8.6 discusses the implications of this study for policymakers and practitioners. Section 8.7 explicitly discusses the limitations of the study with some suggestions for future research.

8.2 Overview of the Thesis

This thesis is organized into eight chapters. Chapter One introduced the background of this study and highlighted five factors that motivated the research. It established the study's two research questions and discussed the expected contributions.

Chapter Two produced a critique of the literature regarding voluntary disclosure, corporate governance characteristics and firm performance, focusing on prior meta-analyses, as well as developed and developing country and Bangladeshi contexts. From this review, a need for further insights from a Bangladeshi context emerged and an opportunity for contributions to the literature were identified.

Chapter Three explained the theoretical underpinnings of the study. Following a rigorous analysis of the existing individual and combined theoretical frameworks, the framework of An et al. (2011) was considered as more appropriate for this study, with some modifications. These changes included considering the research context and applying social and environmental, along with intellectual capital, disclosures in an empirical study. This study adopted agency, legitimacy and signalling theory to articulate the determinants and effects of voluntary disclosure suitable in a Bangladeshi context.

Chapter Four provided a review of the Bangladeshi context and developed hypotheses for this study. The overall context, including historical, economic, legal and regulatory aspects, relevant authorities for corporate governance, voluntary disclosure and status of the market, were discussed. Eight hypotheses were developed to explore the determinants of voluntary disclosure in relation to corporate governance characteristics, including CEO duality, board size, board composition, sub-committee, audit committee compositor, foreign ownership, director ownership and institutional ownership. In addition, a further hypothesis was also developed to explore the effects of voluntary disclosure on firm performance. Five sub-hypotheses were constructed by considering five indicators of firm performance including ROA, ROS, MCAP, EPS and Tobin's Q.

In Chapter Five the data and empirical models employed in this study were described. The study considered the top 200 listed firms on the Dhaka Stock Exchange for the years 2011 to 2013 with firm performance based on the years 2012 to 2014.

Since the focus of the thesis is voluntary corporate disclosure, data was collected from listed firm's annual reports. To ensure rigorous data collection, a disclosure index for social, environmental and intellectual capital was developed from prior studies using content analysis. Secondary data of firm performance was collected from the Bloomberg database. The two models focused on the relationship between corporate governance characteristics and voluntary disclosure and the effects of voluntary disclosure on financial performance. In addition, consistent with the literature, Firm Size, Leverage, Industry and Current Year Firm Performance were considered as control variables. Furthermore, to analyse the research models panel data, OLS and 2SLS were applied along with two robustness tests for each model.

Chapter Six presented the results, revealing that corporate governance characteristics act as a significant explanatory factor for corporate voluntary disclosures of social, environmental and intellectual capital. It should also be noted that several robustness tests and statistical analyses were performed.

Chapter Seven presented the results revealing that voluntary disclosures of social, environmental and intellectual capital moderate firm performance. Consistent with the previous chapter several robustness tests and statistical assumptions were performed.

Chapter Eight concludes the thesis with a discussion of the results obtained in Chapters Six and Seven, implications for policy and practice, acknowledgement of the contributions of this thesis and the limitations as well as avenues for future research.

8.3 Discussion of the Findings.

This thesis investigated two research questions.

1) To what extent do corporate governance characteristics affect voluntary disclosure of social, environmental and intellectual capital disclosures in Bangladesh listed firms?
2) To what extent does voluntary disclosure affect firm performance in Bangladeshi listed firms?

These findings are discussed in the following section.

8.3.1 Discussion on the Findings of the Relationship Between Corporate Governance Characteristics and Voluntary Disclosures

This section provides a summary of the findings relating to research question one. In particular, to what extent do corporate governance characteristics affect voluntary disclosure of social, environmental and intellectual capital disclosures in Bangladeshi listed firms. Previous empirical studies suggest that the characteristics of corporate governance act as an explanatory factor (Ali et al. 2017; Allegrini & Greco 2013; Barako et al. 2006a, 2006b; Garcia-Meca & Sánchez-Ballesta 2010; Khlif et al. 2016; Samaha et al. 2015) and the findings of the limited studies of the Bangladeshi context also report it as a significant explanatory factor (Khan et al. 2013; Muttakin et al. 2015; Rashid & Lodh 2008).

The hypotheses were formulated in light of prior relevant studies. Suitable statistical tests were used to answer whether eight significant characteristics of corporate governance: CEO duality, board size, board composition, sub-committee, audit committee composition, foreign ownership, director ownership and institutional ownership act as an explanatory factor. The results were also reported in robustness tests one and two and in some cases not all three aspects of voluntary disclosures were found. The findings are summarized in Figure 8-1.

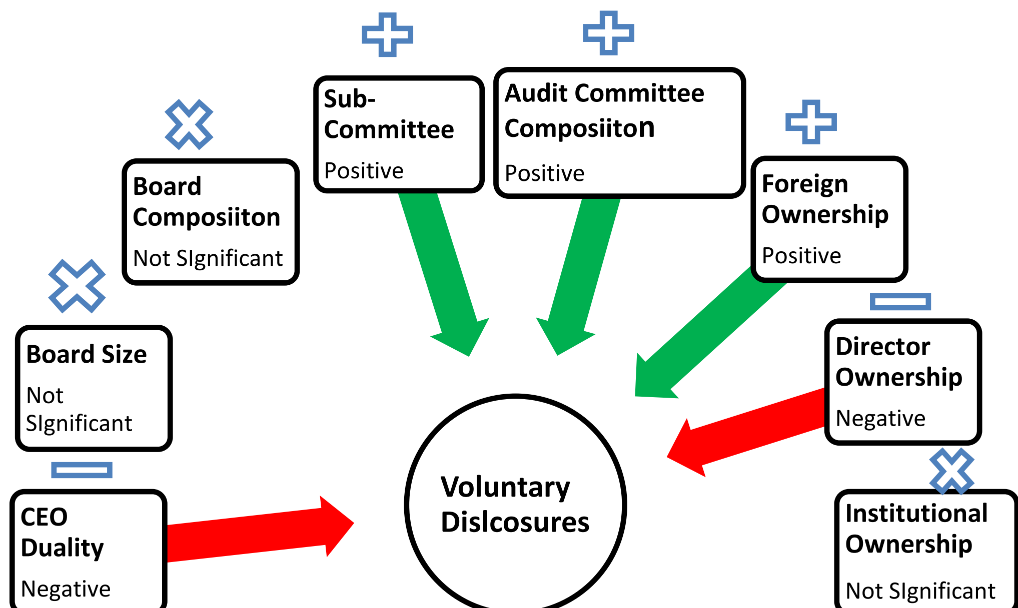

Figure 8-1 Summary of the main findings of the relationship between corporate governance characteristics and voluntary disclosures

A significant negative relationship was reported between CEO duality and voluntary disclosure. This finding is consistent with a large number of prior studies from developed and other developing countries (Allegrini & Greco 2013; Cerbioni & Parbonetti 2007; Giannarakis 2014b; Huafang & Jianguo 2007). Within the Bangladeshi context, the result is consistent with Muttakin et al. (2016) while Rouf (2011) reported a positive and no significant relationship. However, a negative relationship between CEO duality and voluntary disclosure is also consistent with corporate governance guidelines in Bangladesh as firms are advised to avoid this form of leadership to ensure transparency. Thus, it can be concluded that CEO duality reduces transparency within the Bangladeshi context. In addition, finding a negative relationship further supports the argument that a CEO can exercise his/her power over others to focus on mandatory issues or operational success while ignoring any additional initiative that might incur an extra cost.

An insignificant relationship was reported between board size and voluntary disclosure. This finding is consistent with a large number of prior studies from developed and other developing countries (Alves et al. 2012; Cerbioni & Parbonetti 2007; Donnelly & Mulcahy 2008; Giannarakis 2014a, 2014b; Haji 2015; Samaha et al. 2012; Uyar et al. 2013). Within the Bangladeshi context, limited studies have explored this relationship. Those that do report a significant relationship between board size and voluntary disclosure (Muttakin et al. 2016; Rouf 2011). Thus, an insignificant relationship provides a new dimension to the Bangladeshi context as it provides a strong basis for the argument that having more directors is a constraint for coordination (Lipton & Lorsh 1992) and difficult to control by the chairperson (Hermalin & Weisbach 2003; Kaymak & Bektas 2008). Therefore, a larger board is as a pitfall for voluntary disclosure due to a decrease in the effectiveness and monitoring aspect of a board. In addition, a large number of directors makes decision making time-consuming because of the likely wide range of opinions, since values vary from person to person. Ensuring attendance may also be tricky within a developing country context as a smaller board is more beneficial within developing countries (Mak & Kusnadi 2005). Furthermore, it should also be noted that, according to the BSEC guideline, board size should be between five to 20 directors within Bangladesh. Due to such a large range in the number of directors, the monitoring mechanism might be affected or the benefit overestimated.

Therefore, large board size might not play a significant role for adopting voluntary disclosure.

An insignificant relationship was reported between board composition and voluntary disclosure. This finding is consistent with other prior studies from developed and other developing countries (Al-Shammari & Al-Sultan 2010; Allegrini & Greco 2013; Ghazali & Weetman 2006; Hidalgo et al. 2011; Ho & Wong 2001; Xiao et al. 2004). In contrast, limited studies from Bangladesh consistently report a positive relationship between board composition and voluntary disclosure (Khan et al. 2013; Khan 2010; Muttakin et al. 2015; Muttakin et al. 2016; Rashid & Lodh 2008) and an insignificant relationship contributes a new dimension to the literature of Bangladesh. Accordingly, an insignificant result for board composition and voluntary disclosure might be an outcome of the recent corporate governance guideline provided by the BSEC (one-third of board members should be an independent director).[41] Due to the amended mandatory provision to maintain independent directors, firms may comply with the law. However, the independent directors may not emphasize optional issues such as voluntary disclosure. In addition, it could also be argued that, after facing a market collapse in 2010, independent directors might be driven toward firm performance and ignore any issues that might incur extra costs or are not required by law.

A significant positive relationship was reported between the presence of a sub-committee and voluntary disclosure. This result is consistent with a large number of prior studies from developed and other developing countries (Al-Shammari & Al-Sultan 2010; Arcay & Vazquez 2005; Barako et al. 2006b; Cerbioni & Parbonetti 2007; Ho & Wong 2001; O'Sullivan et al. 2008). Within Bangladesh, Rouf (2011) and Khan et al. (2013) report a significant positive relationship by considering only the audit committee as a sub-committee. However, other sub-committees, like a nomination committee, have been ignored in prior studies. This study includes the presence of a nomination committee along with an audit committee to facilitate board monitoring (Allegrini & Greco 2013; Cerbioni & Parbonetti 2007). Accordingly, this study added the presence of a nomination

[41] Corporate Governance guideline 2012 http://www.secbd.org/Notification%20on%20CG-07.8.12-Amended.pdf

committee, as well as an audit committee, by arguing that these committees ensure monitoring, controlling and transparency within firms in a Bangladeshi context. Therefore, finding a positive relationship with the addition of another sub-committee extends our understanding and provides further support for the argument that the existence of a sub-committee facilitates monitoring and controlling. It should also be noted that having a sub-committee (nomination committee) is not mandatory in Bangladesh. Thus, firms maintaining the sub-committee reduce information asymmetry and increase transparency by disclosing additional information.

A significant positive relationship was reported between audit committee composition and voluntary disclosure. This result is consistent with prior studies from other countries (Akhtaruddin & Haron 2010; Haji 2015; Madi et al. 2014). In the robustness test, this relationship was only shown to exist between environmental and intellectual capital disclosure. No significant relationship has been reported with social disclosure and it is concluded that the audit committee ensures monitoring and transparency within firms in a Bangladeshi context. Finding a positive relationship between audit committee composition and voluntary disclosure supports the argument that independent directors within the audit committee strengthen the monitoring function and establish controlling power. Accordingly, this plays a significant role in reducing information asymmetry and increasing transparency.

A significant positive relationship was reported between foreign ownership and voluntary disclosure. This result is consistent with a large number of prior studies from other country contexts (Barako et al. 2006a; Haniffa & Cooke 2005; Haniffa & Cooke 2002; Huafang & Jianguo 2007). This result is also consistent with prior studies from Bangladesh (Khan et al. 2013; Muttakin et al. 2015). Therefore, it is concluded that foreign ownership reinforces compliance with international rules and standards. Hence, this form of ownership facilitates transparency within the firms in the Bangladeshi context. Similarly, finding a positive relationship between foreign ownership and voluntary disclosure further supports the argument that having foreign ownership provides an opportunity to comply with other, often developed country, norms and values. At the same time,

firms with foreign ownership might also be interested in promoting their firm within international markets and attracting various investment opportunities while simultaneously considering a broader range of stakeholders.

A significant negative relationship was reported between director ownership and voluntary disclosure and supports hypothesis1 (g). This result is consistent with a large number of prior studies from other country contexts (Eng & Mak 2003; Ghazali & Weetman 2006; Haji 2013; Mohd Ghazali 2007). This is also consistent with the prior studies from a Bangladesh perspective (Khan et al. 2013; Rashid & Lodh 2008; Rouf & Al Harun 2011). Thus, it can be concluded that director ownership reduces transparency within the Bangladeshi context. Accordingly, this result further supports the argument that director ownership may discourage disclosure of additional information while limiting the focus on firm performance metrics. It should also be noted that director ownership might encourage an agency conflict. As a result, within a developing country like Bangladesh, directors have the privilege of accessing additional information and might not be interested in sharing this information with others through voluntary disclosure.

An insignificant relationship was reported between institutional ownership and voluntary disclosure. Hypothesis1 (h) is, therefore, rejected. This result is consistent with prior studies from developed and developing countries (Donnelly & Mulcahy 2008; Haniffa & Cooke 2002). This result is also consistent with the findings of Rashid and Lodh (2008). However, robustness tests demonstrate an insignificant relationship with intellectual capital and a significant negative relationship with social and environmental disclosures. As a result, it is concluded that institutional ownership does not moderate the level of voluntary disclosure. It should also be noted that an insignificant relationship between institutional ownership and voluntary disclosure further supports the argument that this form of owner – the expert investor – is more concerned with maximizing short-term financial returns instead of considering long-term effects or a voluntary disclosure agenda.

Besides corporate governance characteristics, this study also considers four control variables including firm size, leverage, industry and firm profitability to

examine the determinants of voluntary disclosure. In the following, a result for each control variable is discussed.

A significant positive relationship was reported between firm size and voluntary disclosure. This result is consistent with prior studies from other countries (Barako et al. 2006b; Donnelly & Mulcahy 2008; Samaha et al. 2012) as well as Bangladesh (Khan et al. 2013; Khan 2010; Muttakin & Khan 2014; Muttakin et al. 2015; Muttakin et al. 2016; Nurunnabi et al. 2011). A positive relationship between firm size and voluntary disclosure further supports the argument that larger firms are subject to additional pressure from several stakeholders. Since larger firms have more stakeholders and greater resources, larger firms can focus on an additional agenda like voluntary disclosure (Firth 1979; Singhvi & Desai 1971; Watts & Zimmerman 1986; Cowenet al. 1987). Thus, firms with a larger size consider voluntary disclosure to communicate to several stakeholders while additional capability also allows for considering optional issues like voluntary disclosure.

An insignificant relationship was reported between leverage and voluntary disclosure. This result is consistent with prior studies from other less developed countries (Akhtaruddin et al. 2009; Ghazali & Weetman 2006; Ho & Tower 2011; Ho & Wong 2001; Samaha et al. 2012) but inconsistent with prior studies from Bangladesh (Khan et al. 2013; Muttakin et al. 2015; Muttakin et al. 2016). An insignificant relationship might occur because, after the share market collapse, firms from Bangladesh were focused on regular economic goals, such as improving performance. Accordingly, due to debt there is an additional expense, thus firms are less interested in emphasizing optional issues such as voluntary disclosure that may cause additional cost.

A significant positive relationship was reported between industry and voluntary disclosure This result is consistent with prior studies from other countries (Chan et al. 2014; Jizi et al. 2014; Samaha et al. 2012) as well as Bangladesh (Muttakin & Khan 2014; Muttakin et al. 2016; Nurunnabi et al. 2011). It should be noted that the Bangladesh Bank, the regulator of the banking industry in Bangladesh, called for more voluntary information (Khan 2010). In addition, firms within the financial industry are primarily more concerned with firm transparency due to external pressure from various parties (Bhambri & Sonnenfeld 1988). They

are also a source of loans for various parties. Accordingly, it can be expected that firms within the financial industry might promote increased transparency to impress interested parties. In regards to the relationship between financial industry and social disclosure Giannarakis (2014, p. 409) states

> The financial industry plays a catalytic role in supporting others industries by financing them. In addition, the financial companies provide more information on their CSR initiatives to convince that the maximization of the profit is not the unique purpose of the companies.

Consistent with the above discussion, and combined with a significant positive result, this suggests that firms within the financial industry in Bangladesh are more proactive in their efforts to disclose voluntarily.

An insignificant relationship was reported between profitability and voluntary disclosure. This result is consistent with prior studies from other countries (Eng & Mak 2003; Ho & Wong 2001; Samaha et al. 2012; Zeng et al. 2012) but inconsistent with prior studies from Bangladesh (Khan et al. 2013; Khan 2010; Muttakin et al. 2016). Regarding the inconsistent result from Bangladeshi studies, it should be noted that to measure profitability accounting measurements had been primarily considered in prior studies (Khan et al. 2013; Khan 2010; Muttakin et al. 2016) while this thesis considers a mixed method. Thus, measurement of profitablity may also be a probable reason for the insignificant result. Furthermore, due to the poor social and economic conditions and lack of a strong local stakeholder, firms may consider voluntary disclosure as less important as it may not be significant for future profitability. Therefore, based on the results of the control variable it can be concluded that larger firms, and those within the financial industry, focus on voluntary disclosure. Such findings might be explained by the capability to focus on additional agenda, such as voluntary disclosure, while smaller firms are limited to regular operations. Similarly, the banking sector is subject to more regulation compared to other industries. Thus, the financial industry or banks are keen to promote transparency by discharging additional information.

8.3.2 Discussion on the Findings of the Effects of Voluntary Disclosures on Firm Performance

This section provides a summary of the findings obtained from research question two. In particular, to what extent does voluntary corporate disclosure of

social, environmental and intellectual capital affect firm performance in Bangladeshi listed firms. Previous empirical studies suggest that voluntary disclosure has a significant positive effect on firm performance (Abdolmohammadi 2005; Griffin & Mahon 1997; Orlitzky et al. 2003; Qiu et al. 2016) and the findings of the limited studies of the Bangladeshi context have similar results (Hossain et al. 2015).

The hypotheses were formulated in light of prior relevant studies. Suitable statistical tests and five indicators of firm performance including ROA, ROS, MCAP, EPS and Tobin's Q were used to answer whether voluntary disclosure affects firm performance. The main findings are summarized in Figure 8-2.

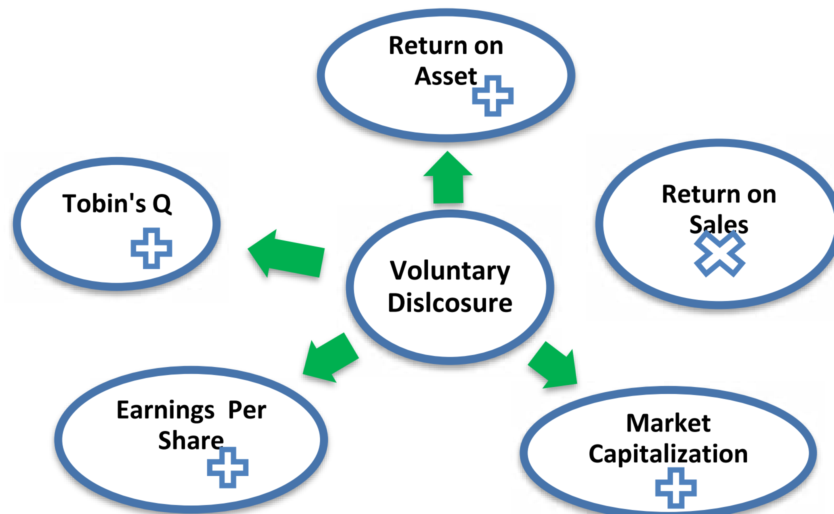

Figure 8-2 Summary of the main findings of the effects of voluntary disclosures on firm performance

A significant positive effect from voluntary disclosure on ROA was reported. This finding is consistent with a large number of prior studies from developed and other developing countries (Ahamed et al. 2014; Basah & Khairi 2015; Chen & Wang 2011; Chen et al. 2016; Choi et al. 2010; Garay et al. 2013; Kim et al. 2013; Mishra & Suar 2010; Platonova et al. 2016; Wibowo 2012). Within the Bangladeshi context, the result is consistent with Hossain et al. (2015). ROA is an accounting based firm performance measurement, and the findings can be explained as follows. *First,* consistent with agency and signalling theory, disclosing extra information reduces information asymmetry and the cost of finance and

promotes foreign investment. By doing so, firms may also achieve operational efficiencies, which may lead to higher returns. It should also be noted that Bangladesh is more dependent on Western investment (Islam 1992) and increased disclosure facilitates donations and reductions in operational costs (cost of finance) (Sengupta 1998). *Second*, firms may adopt disclosure of additional information to address social concerns, which may make a positive contribution to operational efficiency (Brine et al. 2007). For instance, by creating customer loyalty (Mishra & Suar 2010), better quality of labour, minimizing costs through fewer lawsuits from employees and environmentalists (Ullmann 1985; Waddock & Graves 1997), customer advocacy and positive word-of-mouth (Hoeffler & Keller 2002; Sen et al. 2006). *Finally,* interested parties might assess the potential of a firm from value related disclosures (intellectual capital). Thus, increased disclosure reflects the chances of value creation by a firm, which in turn affects returns positively. In addition, as a robustness test, it is also documented that social and intellectual capital disclosure has a significant positive effect on ROA. However, an insignificant effect from environmental disclosure might indicate less awareness of environmental issues with a focus on economic development (Belal et al. 2015).

An insignificant positive effect from voluntary disclosure on ROS was reported. It should also be noted that in the earlier analysis an endogeneity problem was observed. An endogeneity problem suggests that there might be a contingent factor associated with ROS. In addition, ROS might be related to poor socio-economic conditions where customers are not keen to pay a premium for voluntary disclosure. Although the actual reason is difficult to determine, an insignificant result is consistent with other studies (Aras et al. 2010; Brine et al. 2007). Aras et al. (2010) concluded that the reason for the insignificant result is uncertain but is concerned with variable selection. Brine et al. (2007) also emphasized variable measurement and a need for lag-year for future studies. In addition, as a robustness test, it is also documented that social and environmental disclosure has an insignificant effect on ROS. In contrast, intellectual capital disclosure has a significant positive effect, and suggests that the interested parties regard highly its potential value creation opportunities.

A significant positive effect from voluntary disclosure on MCAP was reported. This finding is consistent with prior studies (Abdolmohammadi 2005; Anam et al. 2011; De Klerk et al. 2015; Elzahar et al. 2015; Uyar & Kılıç 2012) and the perspective of legitimacy and signalling theories. This result contributes for the first time to the Bangladeshi context. Market capitalization is a market based firm performance measurement indicator, and the positive result could be a result of the following. *First*, as agency and signalling theory implies, voluntary disclosure facilitates a reduction in information asymmetry as interested parties might consider it as a positive signal. Thus, by considering additional information firms may justify the potential of value creation through intangible assets. *Second*, as with legitimacy theory, firms discharge their social contract responsibilities by considering social and environmental information. Hence, interested parties might have a positive perception of the firm that has increased voluntary disclosure. Finally, the Bangladeshi share market experienced a severe collapse in 2010, and lack of transparency was argued to be a significant contributing factor (Hossain 2014). As a result, it can be speculated that investors are more concerned with transparency to assess the potential of a firm. Therefore, a positive response from interested parties in turn stimulates share price. In addition, as a robustness test, it is also documented that social, environmental and intellectual capital disclosure also has a significant positive effect on MCAP.

A significant positive effect from voluntary disclosure on EPS was reported. This finding is consistent with Oeyono et al. (2011) and Verbeeten et al. (2016) as well as legitimacy and signalling theory. It could be speculated that interested parties within Bangladesh perceive voluntary disclosure as a positive signal and value firms with more voluntary disclosure, which leads to increased earnings per share. It should also be noted that EPS is a marketing based firm performance indicator. Thus, a positive effect is also advocated by agency theory that additional information (voluntary disclosure) reduces information asymmetry and improved EPS. In addition, as a robustness test, it is also documented that social and intellectual capital disclosure has a significant positive effect on EPS. However, consistent with other indicators (i.e., ROA, ROS) an insignificant effect from environmental disclosure was reported, further supporting that there is less awareness about environmental issues within the Bangladeshi context.

A significant positive effect from voluntary disclosure on Tobin's Q was reported. This finding is consistent with prior studies (Chi 2009; Choi et al. 2010; Garay et al. 2013; Khlif et al. 2015) and advocates the concept of signalling and legitimacy theory where the interested parties perceive voluntary disclosure in a positive manner, resulting in a positive impression. In addition, Tobin's Q as a mixed measurement of firm performance with a positive effect is consistent with the result from the accounting indicator (ROA) as well as the market indicator (MCAP and EPS). In addition, as a robustness test, it is also documented that social and intellectual capital disclosure also has a significant positive effect on ROA. Consistent with other indicators (i.e. ROA, ROS, EPS) an insignificant effect from environmental disclosure has been reported and further supports the argument that there is less awareness about environmental issues within the Bangladeshi context.

This study also considers firm size, leverage, industry, CEO duality and board composition as a control variable while investigating the effects of voluntary disclosure on firm performance. In the following, a result of each control variable is discussed.

A mixed result was found regarding the relationship between firm size and firm performance. A positive relationship between firm size and firm performance was documented by considering MCAP and EPS as indicators of firm performance. A positive relationship is consistent with the literature (Anam et al. 2011; Uyar & Kilic 2012). A possible explanation may be that investors might appreciate larger firms. On the other hand, a significant negative relationship was observed by considering ROS and Tobin's Q as indicators. This negative finding is also consistent with prior studies (Lo and Sheu 2007; Weir et al. 2002). It may be that larger-sized firms also require a higher amount of return to cover larger costs and negatively affect firm performance. In contrast, no significant effect was revealed for firm performance by considering ROA. An insignificant relationship between firm performance and size is also consistent with prior studies (Mishra & Suar 2010). Therefore, due to various calculation methods and the involvement of various stakeholders in firm performance, firm size may act as an explanatory factor in a mixed way and Bangladesh is not an exception.

Leverage reveals the debt structure of a firm and a negative relationship with firm performance has been observed. In particular, a negative relationship has been demonstrated by considering ROA, MCAP and Tobin's Q as indicators. A negative relationship is also consistent with prior studies (Alsaeed 2006; Anam et al. 2011; Garay et al. 2013; Lima et al. 2011). Accordingly, it can be claimed that higher leverage incurs more agency costs between creditors and shareholders and that can lead to a negative effect on firm performance (Fama & French 1998; Khlif et al. 2015). Therefore, a negative relationship is also consistent with the arguments of agency theory. In addition, having more debt might be a concern for investors and this perception may have an adverse relationship with firm performance (Myers 1977). In contrast, no relationship was reported by considering ROS and EPS as an indicator. An insignificant relationship between leverage and performance is also consistent with prior studies (Qiu et al. 2016). This mixed finding may occur as the calculation of firm performance indicators is not unique. Thus, the cost of leverage may not be considered as a contingent factor during the calculation process for every indicator.

Regarding the relationship between industry and firm performance, a negative relationship was found. In particular, a negative relationship has been demonstrated by considering ROA, MCAP, EPS and Tobin's Q as firm performance indicators. Prior studies also documented that industry acts as an explanatory factor for firm performance (Haniffa & Hudaib 2006; Khlif et al. 2015; Schmalensee 1985;). It should be noted that the financial industry is subject to intense monitoring from regulators[42] and Bangladesh is not an exception. To some extent, other industries in Bangladesh are more relaxed compared to the financial industry in terms of monitoring and supervision (Bhuiyan & Biswas 2007). As a result, varied responses across industries may act as an explanatory factor for firm performance (Elsayed & Paton 2005). Therefore, it can be explained that firms in financial services may struggle to develop firm performance compared to other industries. In contrast, an insignificant relationship with ROS was found. This is not surprising as sales are not a direct concern in the financial industry because it is service-oriented.

[42] https://www2.deloitte.com/au/en/pages/risk/articles/monitoring-conduct-financial-markets.html Visited 3/03/2018 6.11PM

Primarily a negative result was found regarding the relationship between CEO duality and firm performance by considering ROA, ROS, EPS and Tobin's Q as indicators. This negative relationship is also consistent with prior studies (Jackling & Johl 2009; Rahman & Haniffa 2005; Ujunwa 2012). This negative effect may indicate that having this leadership structure is not appreciated by interested parties due to a lack of transparency and individuals' centralized power. In addition, according to the recommendations of the Bangladesh BSEC, firms should avoid this leadership style. Accordingly, a firm may have a negative effect from a cost of debt/equity perspective. Therefore, a firm with CEO duality struggles to maintain better performance. However, an insignificant relationship with firm performance was reported by considering MCAP as an indicator. This may be due to poor socioeconomic conditions, in which a lack of concern regarding this leadership structure exists. In addition, CEO duality may not directly moderate MCAP as this indicator is not based on a firm's operational issues directly. Other issues act as a contingent factor for this indicator, therefore, CEO duality has a minimal effect on MCAP.

Board composition does not have a significant relationship with firm performance indicators including ROA, ROS, MCAP, EPS and Tobin's Q. An insignificant relationship between board independence (composition) is also consistent with prior studies in Bangladesh (Rashid et al. 2010; Rashid 2018d). This insignificant relationship can be explained by firms in Bangladesh being mainly family ownership dominated (Farooque et al. 2007) where independent directors are proposed by internal directors (Rashid 2018d). As a result, independent directors may not have enough power to dominate firm performance. It should also be noted that the BSEC's new corporate governance guidelines maintain one-third independent directors. Thus, board composition from an independent director perspective is less a matter of choice but of compliance with regulatory guidelines. Therefore, independent directors may not be a strong mechanism to moderate firm performance.

8.4 Implications of the Findings

This section relates to the implications of the findings of this thesis. In particular, the contributions arising from the relationship between corporate governance characteristics and voluntary disclosures and the effects of the voluntary disclosures on firm performance are presented.

8.4.1 Implications for the Findings of the Relationship between Corporate Governance Characteristics and Voluntary Disclosures

As discussed in the findings, certain characteristics of corporate governance act as an explanatory factor for voluntary disclosure for the 134 listed firms in Bangladesh. Therefore, the following implications arise from this finding.

First, in 2012, the BSEC in Bangladesh promulgated a new guideline for corporate governance in response to a severe share market collapse and to foster corporate transparency for investors. Since this study investigated disclosures from a corporate governance perspective, the thesis has made a significant contribution in relation to the assessment of corporate governance practices. For example, consistent with the BSEC guideline, this study of Bangladeshi listed firms reported that CEO duality adversely contributes to the transparency of a firm. Besides this characteristic, audit committee composition and the presence of sub-committees (audit and nomination) contributes to the voluntary disclosure of social, environmental and intellectual capital information. This result has the potential to guide future issuance of corporate governance guidelines to ensure firm transparency and boost investor confidence. For example, the BSEC may encourage listed firms to establish a nomination committee for monitoring and controlling a firm and stimulating transparency.

Second, regarding ownership, the relationship between foreign, director and institutional ownership was equivocal. Therefore, the findings of this thesis suggest that in terms of ownership structure foreign investors are more concerned with voluntary disclosure. This is consistent with agency and legitimacy theory as this form of investor requires more information for investment decisions as well as to comply with the values of a wide range of investors. The BSEC may provide more compensation or incentives for firms with foreign investors to voluntarily disclose or encourage voluntary disclosure. In addition, director ownership provides the

opportunity to limit information as these director owners have direct access. Thus, from an agency theory perspective, the BSEC may introduce incentives for directors to consider voluntary disclosure as transparency might be a concern. In relation to institutional ownership, this group of investors are more concerned with firm performance. Thus, once again from an agency perspective the BSEC may need incentives for voluntary disclosure.

Third, board size and composition were observed to have an insignificant impact on voluntary disclosure. The current BSEC guidelines suggest that board size should be between five to 20 directors, however, it was documented that the benefit of a larger board size reduced after a certain level of members (Abeysekera 2010; Hidalgo et al. 2011). Accordingly, the BSEC may consider the effectiveness of a large board when setting the maximum number of board members. In addition, the BSEC suggests a board should consist of at least one-third independent directors. However, this study found that this finding did not contribute to voluntary disclosures, which suggest that (i) the power to appoint directors rests with large shareholders and (ii) independent directors in Bangladesh may concentrate on the firm or operational performance and ignore voluntary disclosure due to the influence of other stakeholders. These features adversely influence firm transparency. Therefore, it is essential that the BSEC provide further guidelines to ensure increased voluntary disclosure and therefore firm transparency.

Fourth, leverage did not contribute to voluntary disclosure. This result reflects that debt providers may not indicate social and environmental concerns or intellectual capital aspects. Accordingly, the BSEC may initiate incentives for firms or debt providers. For example, for lending guidelines, firms with more voluntary disclosure may get priority.

Finally, firm size and industry type (banking industry) contributes to the level of voluntary disclosure since large firms are able to afford the additional cost of managing voluntary disclosures (Ammann et al. 2011; Firth 1979; Singhvi & Desai 1971). Similarly, larger firms are subject to additional agency costs, which are reduced by additional disclosures (Hossain et al. 1995). Therefore, the BSEC could provide incentives to smaller firms to provide more voluntary disclosures. Similarly, firms from the financial (banking) industry have an increased level of

voluntary disclosure. However, the banking industry receives inducements from the Central Bank of Bangladesh to provide additional information (Khan 2010) in the form of voluntary disclosure. In addition, increased transparency is expected from banks as investor confidence is critical for banking and finance in Bangladesh. Therefore, from a legitimacy theory perspective, to comply with the social contract and reduce information asymmetry from the agency and signalling theory perspectives, voluntary disclosures are important.

8.4.2 Implications for the Findings of the Results of the Effects of Voluntary Disclosure on Firm Performance

Voluntary disclosures contribute to firm performance for the 134 listed firms with the following implications.

First, within the Bangladeshi context, the BSEC is keen to ensure transparency;[43] accordingly more voluntary disclosures are expected from firms as a mechanism to reduce information asymmetry. Therefore, this effect on firm performance provides evidence for regulatory authorities such as the BSEC to promote transparency through voluntary disclosures as an incentive.

Second, since there are insufficient levels of voluntary disclosures within Bangladeshi firms (Omran & El-Galfy 2014; Azim et al. 2009; Belal 2000, 2008; Belal & Momin 2009; Khan et al. 2009) due to the socio-economic environment, firms may assume voluntary disclosures are merely an additional cost with little return. Therefore, the findings of this study provide an incentive for firms to consider voluntary disclosures from an economic perspective. Accordingly, firms may disclose social, environmental and intellectual capital information more effectively to align with the strategic goals of shareholder value. For example, firms may consider recruiting directors with social, environmental and intellectual capital knowledge.

Finally, for the local investor, the findings shed light on the potential of their investment. Investors from Bangladesh may not be aware of the significance of a socially or environmentally responsible attitude in terms of firm performance,

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[43] http://www.secbd.org/Revised%20of%20CG%20Guidlines%20BD.pdf Visited 2/06/2015 6.36PM http://www.secbd.org/Order%20relating%20to%20Corporate%20Governance%20Guidelines-9%20Jan06.pdf Visited 2/06/2015 6.20PM

seeing it only as an additional cost or sacrifice to profit. Therefore, the findings of this study provide investors with a lead indicator of overall performance.

8.5 Contributions of the Study

The current study extends the understanding of the determinants and effects of voluntary disclosure by combining the concepts of corporate governance, voluntary disclosure and firm performance. It also contributes methodologically to the accounting literature in several ways.

First, most of the prior studies limit the focus of their studies on determinants (Khan et al. 2013; Khan 2010; Muttakin & Khan 2014; Muttakin et al. 2015; Muttakin et al. 2016; Rashid & Lodh 2008) or effects (Hossain et al. 2015) of voluntary disclosure. This study combines both the determinants and effects within Bangladeshi listed firms by integrating three perspectives: (1) corporate governance; (2) voluntary disclosure; and (3) financial performance. Therefore, it provides a more complete picture of voluntary disclosures as it is presumed that, when making decisions about the level of voluntary disclosures, a firm also assesses the potential effect on performance. This study also extends the literature by considering environmental and intellectual capital disclosure in addition to social disclosures in the Bangladeshi context. It also considers the period following a severe share market crash in Bangladesh. Thus, the findings contribute to the use of an integrated approach by establishing evidence of voluntary disclosure from corporate governance and firm performance aspects in Bangladesh.

Second, the study contributes to the literature by adopting a combined theoretical framework to interpret the empirical findings and to understand the underpinnings of corporate governance, voluntary disclosure and firm performance from a developing country context. In so doing, this study reviews the existing theoretical framework and finds combining several theories guides voluntary disclosure studies more appropriately since most studies combine several concepts instead of considering the interactions developed by An et al. (2011). An et al. (2011) is considered as a pioneering framework with some limitations. This study considered these limitations to develop a combined framework for a Bangladeshi

country context. For example, when considering voluntary disclosure, a firm has to consider: reducing information asymmetry; maximizing shareholder interest; transparency; monitoring; controlling; agent–principal conflict; compliance with the social contract; and the consequences of ignorance. All these concepts are articulated by integrating agency, legitimacy and signalling theory. By considering or ignoring voluntary disclosures a firm demonstrates whether it has complied with the social contract. Similarly, by considering voluntary disclosure as a signal, interested parties may have a certain perception of the firm. These concepts align with the concept of legitimacy and signalling theory as articulated in Figure 8-3.

Research Question: Determinants of Voluntary Disclosure (Decision-making Process of Voluntary Disclosure)

Agency

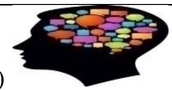
CEO duality: Due to extra power increase agent principal conflict & information asymetry
Sub-Committee: Increase monitoring / maximize shareholders' interest
Audit Committee Compositon: Increase monitoring / maximize shareholders' interest
Director Ownership: Increase agent principal conflict & information asymetry
Foreign Ownership: Reduce information asymetry by satisfying interested parties with other region

Legitimacy

CEO duality: Due to extra power ignore social contract .
Sub-Committee: Increase monitoring also ensure to comply with social contract
Audit Committee Compositon: Increase monitoring also ensure to comply with social contract
Director Ownership: Due to personal interest ignore social contract
Foreign Ownership: Social values and norms from foreign investors need to emphasize and provides priroty to social contract

Signalling

CEO duality: Due to extra power ignore reduction of information asymetry
Sub-Committee: Would like to send a positive signal regarding the monitoring by increasing transperency (dislcosure)
Audit Committee Compositon: Would like to send positive signal regarding the monitoring by increasing transperency (dislcosure)
Director Ownership: Due to personal interest just ignore the signalling by avoiding additional information.
Foreign Ownership: Would like to send a positive signal for promoting more investors from abroad, thus by giving addiitonal information they reduce information asymetry



Research Question: Effects of Voluntary Disclosure (How Interested Parties Perceive Voluntary Disclosure)

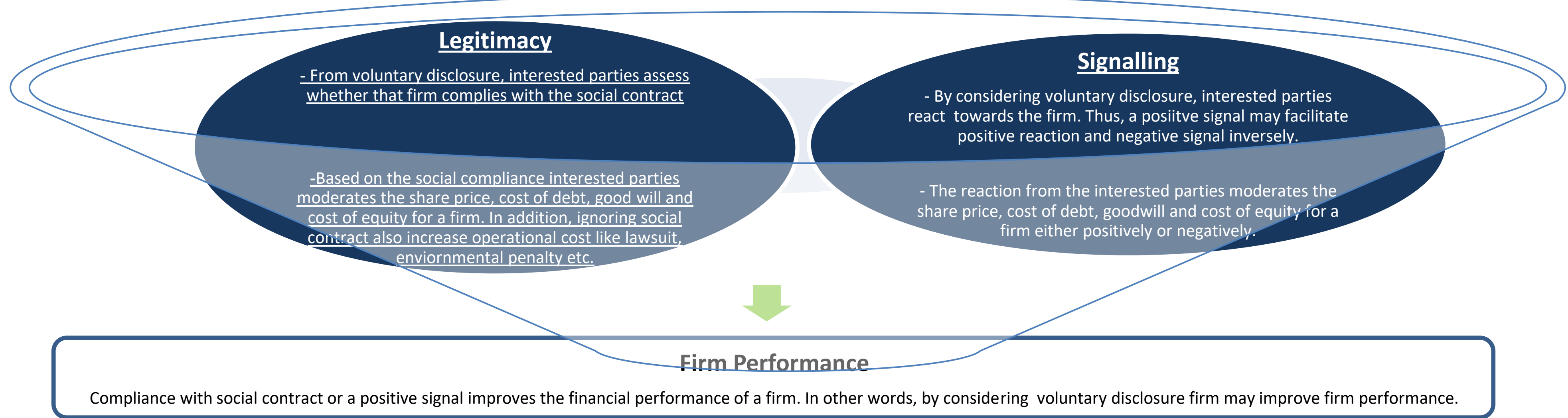


Figure 8-3 Summary of the theoretical contribution

Third, this study extends the voluntary disclosure literature by categorizing social and environmental disclosures according to the long-term, short-term and general disclosure perspectives. Prior studies mainly assess disclosure by only considering the operational context (Belal et al. 2010; Hackston & Milne 1996; Kamal & Deegan 2013; Khan et al. 2013). Voluntary disclosure is also considered a strategic tool of a firm as it has the potential to develop competitive advantage (Mishra & Suar 2010). Accordingly, both long and short-term perspectives (Banks & Wheelwright 1979) are included in the categorization of social and environmental disclosures (Carroll 1991). Therefore, this study extends the literature by aligning strategic management objectives.

Fourth, this study investigates the relationship between corporate governance characteristics and voluntary disclosure from Bangladesh as a developing country context. Accordingly, by combining social, environmental and intellectual capital disclosures, this study extends the extant literature by providing evidence on novel aspects of corporate governance.[44] In addition, for corporate governance related studies, endogeneity is considered as a significant pitfall (Larcker et al. 2007; Larcker & Rusticus 2007). In this study robustness tests, such as the additional endogeneity test and the individual effects of social, environmental and intellectual capital disclosures guarantee a rigorous result. Furthermore, the period of this study covers the post-share market crash, therefore, providing more relevant information for decision making.

Finally, this study draws on three categories of firm performance indicators accounting, market-based and mixed, which are absent in prior studies (Brine et al. 2007; Hossain et al. 2015; Lima Crisóstomo et al. 2011). Therefore, the results from this study are considered more rigorous and contribute to a robust understanding of voluntary disclosure in a developing country context.

[44] This study considers an extra sub-committee in addition to audit committee. In addition, consideration of the audit committee composition from independent directors is also novel. Furthermore, consideration of institutional ownership is also limited within Bangladesh.

8.6 Limitations of this Study

Although the contributions and implications of the study are addressed in the preceding sections, similar to any other empirical study, this study is also subject to limitations, as discussed below.

First, the findings of this study are based on listed firms in Bangladesh. Although listed firms are important, there are other firms that significantly contribute to the Bangladesh economy, such as small or family firms. Extending the data set to include other firms would generate further insight.

Second, this study's investigation was based on a three-year period between 2011 to 2013 for corporate governance characteristics and voluntary disclosure and 2012 to 2014 for firm performance. Voluntary disclosure data was extracted manually from the firms' annual reports and collection of data in further years was beyond the timeline for the thesis. There are 134 firms in the yearly samples (402 observations), which is larger than prior studies and the study also considered data after the share market collapse in Bangladesh (Hossain et al. 2015; Khan et al. 2013; Khan 2010; Muttakin & Khan 2014; Muttakin et al. 2015; Rashid & Lodh 2008). Extending the study from 2014 would provide further support for the findings and also the theoretical framework.

Third, the study relies on the annual reports of the firms as the main source of voluntary disclosures and ignores other publicly available information. Although the annual report is considered the most suitable document as it is published on a regular basis (Abeysekera & Guthrie 2005; Khan et al. 2009; Rashid 2015a; Unerman 2000) in recent years firms are increasingly using alternative sources such as sustainability or CSR reports.

Fourth, while this study developed a complex disclosure index for content analysis, there is always a risk of subjectivity. Future studies using the index in other contexts or different time periods may test the accuracy of the categorization.

Fifth, this study examines the effects of voluntary disclosure on firm performance from the Bangladesh share market, which market is not considered as an efficient market (Nguyen & Ali 2011). In particular, if all the information is reflected in determining share price, then it is considered an efficient measure

(Malkiel 1989). A comparatively lower explanatory power (adjusted R^2) for EPS might be affected by this pitfall. Accordingly, there might be another contingent factor for deciding market related performance.

Finally, although the study used five financial performance indicators: ROA, ROS, MCAP, EPS and Tobin's Q, a large number of indicators are available (Margolis & Walsh 2003; Orlitzky et al. 2003; Richard et al. 2009). To overcome these limitations, performance indicators from accounting, market-based and mixed were used for the first time in studies within Bangladesh. Further studies could expand the number, type or mix of performance indicators and control variables.

To summarize, future studies could address the following issues for a further contribution.

1) Consider non-listed firms from Bangladesh.
2) Consider extending data years and a larger sample.
3) Include other publicly available information sources, to assess the disclosure levels.
4) Adopt a mixed-method approach to provide an in-depth explanation and understanding of the governance phenomenon (Johl et al. 2012). Molina-Azorin (2012, p. 33) states that:

    > mixed-methods research is becoming an increasingly popular approach in several areas, and it has long been called for as an approach for providing a better understanding of research problems.

5) Integrate the findings from quantitative and qualitative data.
6) Conduct a comparison study of Bangladesh to test the adoption of An et al.'s (2011) framework and extend understanding for a multi theoretical perspective.

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Appendixes

Appendix A: Prior studies from developed and other developing countries – Relationship between corporate governance characteristics (determinant) and voluntary disclosure

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent: Corporate Governance Variables	
2001	Ho & Wong	98 Hong Kong firms	1997	Multiple regression	Voluntary Disclosure	Board Composition CEO Duality Presence of Audit Committee Percentage of Family Board member	Presence of Audit Committee (+) Percentage of Family Board member (-)
2002	Haniffa & Cooke	167 Malaysian firms	1995	Multiple regression	Voluntary Disclosure	Non-executive Director Family Member on Board CEO Duality Non-executive Chairperson Board Directors with Multi Directorship Chairperson with Multi Directorship Top Ten Shareholders Malay Managing Director Malay Financial Director Malay Chairperson Malay Director Malay Shareholding Accounting Expertise Director Accounting Expertise Finance Director Diffusion of Ownership Foreign Ownership Institutional Ownership Large Audit Firm	Family Member on Board (-) Non-Executive Chairperson (-) Top Ten Shareholders (+) Foreign Ownership(+)
2002	Naser et al.	84 Jordan firms	1998-99	Multiple linear regression		Number of Shareholders Government Ownership Individual Ownership Foreign Ownership Arab Ownership Audit Firm Status	Audit firm status (+)
2003	Eng & Mak	158 Singapore listed firms	1995	OLS	Voluntary Disclosure	Managerial Ownership Block holder Ownership Government Ownership Board Composition	Managerial Ownership (-) Government Ownership (+) Board Composition (-)

Appendix A: Prior studies from developed and other developing countries – Relationship between corporate governance characteristics (determinant) and voluntary disclosure (continued).

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent: Corporate Governance Variables	
2004	Gul & Leung	385 listed firms in Hong Kong	1996		Voluntary Disclosure	Independent & Experienced Directors CEO Duality Independent Directors Director Ownership Audit Firm	Independent Directors (-) CEO Duality (-)
2004	Xiao et al.	300 largest Chinese listed firm	2001	OLS Logit	Voluntary Internet-based Disclosures	Government Ownership State Ownership Legal Person Ownership Foreign Listing/ Share Ownership Independent Director Audit Firm	Government Ownership (-) Legal Person Ownership (+)
2005	Haniffa & Cooke	139 Malaysian firms	1996 & 2002	Multiple regression	Social Disclosure	Malay Director Malay Financial Director Malay Shareholder Non-executive Director Multiple Directorship Foreign Ownership	Malay Director (+) Non-executive Director (-) Multiple Directorship (+) Foreign Ownership (+)
2005	Arcay & Vazquez	91 firms listed in Madrid stock exchange	1999	Structural Equation	Voluntary Disclosure	Proportion of Independent Directors on Board Existence of Audit Committee CEO Duality Board Participation (Director Ownership) Stock Options in Directors Remuneration Board Size Ownership Concentration Foreign Stock Listing	Proportion of Independent Directors on Board (+) Existence of Audit Committee (+) Board Participation (Director Ownership) (+) Stock Options in Directors Remuneration (+) Ownership Concentration (+) Foreign Stock Listing (+)

Appendix A: Prior studies from developed and other developing countries – Relationship between corporate governance characteristics (determinant) and voluntary disclosure (continued).

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent: Corporate Governance Variables	
2006	Barako et al.	43 Kenyan firms	1992-2001	Pooled OLS	Voluntary Disclosure	Board Composition CEO Duality Presence of Audit Committee Shareholder Concentration Foreign Ownership Institutional Ownership	Board Composition (+) Presence of Audit Committee (+) Shareholder Concentration(-) Foreign Ownership (+) Institutional Ownership (+)
2006	Barako et al.	43 Kenyan firms	1992 to 2001	Pooled OLS	Voluntary Disclosure	Board Composition, CEO Duality, Presence of Audit Committee Shareholder Concentration, Foreign Ownership, Institutional Ownership, Type of Auditor	Board Composition (-), Presence of Audit Committee (+)
2006	Cheng & Courtenay	104 firms listed on the Singapore Stock Exchange	1998 and 2000	OLS	Voluntary Disclosure	Board Composition	Board Composition (+)
2006	Ghazali & Weetman	Top 87 firms (after excluding financial firms) listed Malaysian firms	2001	Stepwise regression	Voluntary Disclosure	Ownership Concentration Number of Shareholder Director Ownership Government Ownership Family Members on Board Independent Non-executive Director	Director Ownership (-)

Appendix A: Prior studies from developed and other developing countries – Relationship between corporate governance characteristics (determinant) and voluntary disclosure(continued).

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent: Corporate Governance Variables	
2007	Cerbioni & Parbonetti	54 European firms	2002-04		Eight categories of Intellectual Capital Disclosure	Board Size Board Composition CEO Duality Board Committee (Audit, Nomination, Remuneration) Ownership Structure	Board Size (-) Board Composition (+) CEO Duality (-) Board Committee (Audit, Nomination, Remuneration) Ownership Structure (-)
2007	Huafang & Jianguo	559 listed firms in Shanghi Stock Exchange	2002	OLS	Voluntary Disclosure	Block Ownership , Managerial Ownership, State Ownership, Legal person Ownership, Foreign Ownership, Board Composition , CEO Duality ,	Block Ownership (+), Foreign Ownership (+), Board Composition (+), CEO Duality (-),
2007	Lim et al.	181 Australian firms	2001	2SLS	Voluntary Disclosure	Board Composition Board Size Type of Auditor Top Shareholders Management Compensation	Board Composition (+) Top Shareholders (-)
2007	Mohd Ghazali	87 listed firm in Malaysia	2001	Multiple regression	Social Responsibility Disclosure	Ownership Concentration Director Ownership Government Ownership	Director Ownership(-) Government Ownership (+)
2007	Patelli & Prencipe	171 listed non-financial Italian firms	2002	Multivariate least squares regression	Voluntary Disclosure	Independent Directors on Board Ownership Diffusion	Independent Directors on Board (+) Ownership Diffusion (+)

Appendix A: Prior studies from developed and other developing countries – Relationship between corporate governance characteristics (determinant) and voluntary disclosure (continued).

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent: Corporate Governance Variables	
2008	Donnelly & Mulcahy	51 listed firms in Irish market	2002	Poisson regression Technique	Voluntary Disclosure	Non-Executive Director on Board Non-Executive Director as Chairman Institutional Ownership Managerial Ownership Index of Managerial Ownership Board Size	Non-Executive Director on Board (+)
2008	Li & Qi	100 Chinese firms	2003-05		Voluntary Disclosure	CEO Duality Managerial Ownership	Managerial Ownership(+)
2008	Li et al.	100 UK firms	2004 and 05	Multiple regression	Intellectual Capital Disclosure	Board Composition CEO Duality Share Concentration Audit Committee Size Audit Committee Meetings	Board Composition (+) Share Concentration (-) Audit Committee Size (+) Audit Committee Meetings (+)
2008	O'Sullivan et al.	200 & 183 listed firms in Australia	2000 and 02	Logistic regression	Voluntarily Disclose Forward-looking Information	Board Autonomy Presence and Value of Board Committee Independent Ownership Audit Quality Strength of Corporate Governance	Presence and Value of Board Committee(+) Audit Quality (+)
2009	Akhtaruddin et al.	105 listed Malaysian firms	2002	OLS	Voluntary Disclosure	Board Size, Board Composition, Outside Owner, Family Control, Proportion of Audit Committee Members on Board Nature of the Audit Firm	Board Size (+) Board Composition(+) Outside Owner(+) Family Control (-)

Appendix A: Prior studies from developed and other developing countries – Relationship between corporate governance characteristics (determinant) and voluntary disclosure (continued).

	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent : Corporate Governance Variables	
2009	Jiang & Habib	116 New Zealand firms	2001=005	2SLS	Voluntary Disclosure	Institutional Ownership at High Level Concentration Institutional Ownership at Low Level Concentration Government Ownership at High Level Concentration Government Ownership at Low Level Concentration Managerial Ownership at High Level Concentration Managerial Ownership at Low Level Concentration	Institutional Ownership at High Level Concentration (-) Government Ownership at High Level Concentration (+) Managerial Ownership at High Level Concentration (+)
2009	Laidroo	52 European firms (3 emerging Capital Market)	2001-05		Public Announcements' Disclosures	Ownership concentration Managerial Ownership Government Ownership Institutional; Ownership Foreign Ownership	Ownership concentration (-) Institutional Ownership (+) Foreign Ownership (-)
2010	Abeysekera	Top 26 Kenyan firms	2002-03	Logistic regression	Intellectual capital disclosure	Board size Independent directors on board Independent directors on audit committee Independent directors on other committee	Board size (+) Independent directors on other committee (+)
2010	Al-Shammari & Al-Sultan	170 listed Kuwait firms	2007	Multiple regression	Voluntary Disclosure	Non-executive director on board Family members on board Role Duality Audit committee existence	Audit committee existence (+)
2010	Akhtaruddin & Haron	124 Malaysian Firms	2003	Hierarchical regression	Voluntary Disclosure	Board ownership Proportion of independent directors on audit committee Proportion of expert directors on audit committee	Board ownership (-) Proportion of independent directors on audit committee (+) Proportion of expert directors on audit committee (+)
2010	Veronica & Bachtiar	87 Listed firms in the Indonesian Stock Exchange	2003	Multiple regression	Corporate social reporting	Board Size Foreign Investees	Board Size (+ & -)

Appendix A: Prior studies from developed and other developing countries -Relationship between Corporate Governance Characteristics (determinant) and Voluntary Disclosure (continued).

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent : Corporate Governance Variables	
2011	Hidalgo et al.	100 Mexican Firms	2005-07	Multiple regression	Intellectual Capital Disclosure	Board Size Board Independence Audit Committee Independence Chairman/ CEO Duality Insider Ownership Family Ownership Ownership Concentration Institutional Ownership	Board Size (+) Institutional Ownership (-)
2012	Alves et al.	140 Iberian peninsula (38 Portugal & 102 Spain)	2007	Multiple regression	Voluntary Disclosure	Managerial Ownership, Government Ownership, Presence of large shareholder, Proportion of non-executive and independent directors, Board Size, Monitoring and control structure, Management incentive, Management Expertise,	Management Incentive (+) Presence of a large shareholder (-)
2012	Esa & Anum Mohd Ghazali	27 Malaysian firms	2005 and 07	Multiple regression	Social	Board size, Board composition,	Board size (+), Board composition (-),
2012	Rao et al.	100 Australian Firms	2008	OLS	Environmental Disclosure	Independent Non-Executive Institutional Ownership Board Size Female Directors	Independent Non-Executive (+) Institutional Ownership (+) Board Size (+) Female Directors (+)
2012	Li et al.	100 UK Firms	2005	Multiple Regression	Intellectual Capital Disclosure	Audit Committee Size Audit Committee Meetings Audit Committee Independence Audit Committee directors shareholding Audit Committee financial expertise Board Independence Share Ownership Concentration	Audit Committee Size (+) Audit Committee Meetings (+) Audit Committee directors shareholding (-) Board Independence (+) Share Ownership Concentration (-)

Appendix A: Prior studies from developed and other developing countries -Relationship between Corporate Governance Characteristics (determinant) and Voluntary Disclosure (continued).

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent : Corporate Governance Variables	
2012	Ntim et al.	169 South African Firms	2002 -06	OLS	Voluntary Corporate Governance Disclosure	Block Ownership Institutional Ownership Government Ownership Board Size Audit Firm Cross Listing Corporate Governance Committee	Block Ownership (-) Institutional Ownership (+) Government Ownership (+) Board Size (+) Audit Firm (+) Cross Listing (+) Corporate Governance Committee (+)
2012	Samaha et al.	100 Egyptian Listed Firms.	2009	OLS	Corporate Governance Disclosure	Board Composition Board Size Ceo Duality Director Ownership Block Ownership Number of Shareholder Existence of Audit Committee	Board Composition (+) Ceo Duality (-) Block Ownership (-)
2013	Allegrini & Greco	177 non-financial Italian firms	2007	OLS	Voluntary Disclosure	Ownership Diffusion Board composition, Board size, CEO Duality, Lead independent director, Board committees, Board meetings, Audit committee meetings	Board size (+), CEO Duality (-), Board meetings (+), Audit committee meetings (+)
2013	Uyar et al.	131 Turkish Firms	2010	OLS 2SLS	Voluntary Disclosure	Proportion of Independent Directors Institutional Ownership Board Size Ownership Diffusion	Proportion of Independent Directors (+) Institutional Ownership (+) Ownership Diffusion (-)

Appendix A: Prior studies from developed and other developing countries -Relationship between Corporate Governance Characteristics (determinant) and Voluntary Disclosure (continued).

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	**Year**		**Dependent: Disclosure**	**Independent : Corporate Governance Variables**	
2014	Madi et al.	146 listed firm in Malaysia	2009	Multiple Regression	Voluntary Disclosure	Audit Committee Independence Financial Expertise in Audit Committee Audit Committee Meetings Audit Committee Size Audit Committee Members Multiple Directorship	Audit Committee Independence (+) Audit Committee Size (+) Audit Committee Members Multiple Directorship (+)
2014	Othman et al.	Top 94 Listed firms in Malaysia	2011	Multiple linear Regression	Voluntary Ethics Disclosure	Audit Committee Independence Expertise of Audit Committee Audit Committee Meetings Audit Committee Size Audit Committee tenure Members Multiple Directorship	Audit Committee tenure (+) Members Multiple Directorship (-)
2014a	Giannarakis	100 firms from Fortune 500	2011	Multiple regression	Corporate Social Responsibility Disclosure	Board composition Board commitment Ceo duality Board size Board meeting Board age Women on board	Board commitment (+)
2014b	Giannarakis	366 firms from Fortune 500	2011	Multiple regression	Corporate Social Responsibility Disclosure	Ceo duality Board size Board meeting Board age Women on board	Ceo duality (-) Board size (+)

Appendix A: Prior studies from developed and other developing countries – Relationship between corporate governance characteristics (determinant) and voluntary disclosure (continued).

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent: Corporate Governance Variables	
2015	Haji	51 Malaysian listed firms	2008-10	Panel	Intellectual Capital Disclosures	Audit Committee Size Audit Committee Independence Financial Expert in Audit Committee Audit Committee Meetings Board Size Board Independence Director Ownership Institutional Ownership	Audit Committee Size (+) Audit Committee Independence (+) Financial Expert in Audit Committee (+) Audit Committee Meetings (+) Director Ownership (-)
2017	Appuhami & Tashakor	300 listed firms in Australia	2012-13	Multiple Regression	Corporate Social Responsibility Disclosure	Audit Committee Size Audit Committee Meetings Audit Committee Independence Audit Committee Gender Diversity Independent Audit Committee Chair Audit Committee's Financial Expertise	Audit Committee Size (+) Audit Committee Meetings (+) Audit Committee Independence (+) Audit Committee Gender Diversity (+)
2017	Pisano et al	150 European Firms	2014		Human Capital Disclosure	Ownership concentration	Ownership concentration (-)

Appendix B: Prior studies from Bangladesh – Relationship between corporate governance characteristics (determinant) and voluntary disclosure

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent: Corporate Governance Variables	
2006	Hossain et al.	107 listen non-financial firms	2002-2003	Multiple regression	Corporate Social Environmental Disclosure	International Link of Audit Firm	
2008	Rashid & Lodh	21 Bangladesh listed firms	2003-04 to 2006-07	2SLS	Social Disclosure	Ownership Concentration, Board Composition, Directors Share Ownership , Institutional Share Ownership	Director Ownership (-) Board Composition (+)
2010	Khan	30 listed Banks in Bangladesh	2007-08	Multiple regression	Corporate Social Responsibility Disclosure	Non-Executive Director Women Directors Foreign National on Board	Non-Executive Director (+) Foreign National on Board (+)
2011	Rouf & Al Harun	97 Bangladeshi listed firms	2007	Multiple regression	Voluntary Disclosure	Management Ownership Institutional Ownership	Management Ownership (-) Institutional Ownership (+)
2011	Rouf	120 listed Non-Financial firms in Dhaka Stock Exchange , Bangladesh	2007	Multiple regression	Voluntary Disclosure	Independent Director CEO Duality Audit Committee Existence Board Size Ownership Structure	CEO Duality (+) Audit Committee Existence (+) Board Size (+) Ownership Structure (-)

Appendix B: Prior studies from Bangladesh – Relationship between corporate governance characteristics (determinant) and voluntary disclosure (continued)

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent: Corporate Governance Variables	
2013	Khan et al.	116 manufacturing listed firms in Bangladesh	2005-09	Multiple regression	Corporate Social Responsibility Disclosure	Managerial Ownership Public Ownership Foreign Ownership Independent Directors CEO Duality Audit Committee Existence	Managerial Ownership (-) Public Ownership (+) Foreign Ownership (+) Independent Directors (+) Audit Committee Existence (+)
2015	Muttakin et al.	116 listed firms in Bangladesh	2005-09		Intellectual Capital Disclosure	Family Ownership Foreign Ownership Independent Director CEO Duality Family Duality Audit Committee Existence	Family Ownership (+/-) Foreign Ownership(+) Independent Director(+) Family Duality (-) Audit Committee Existence(+)
2016	Muttakin et al.	155 listed firms in Bangladesh	2005-13	Panel Least Square	Corporate Social Responsibility Disclosure	Board Capital CEO Power Board Independence Board Size	Board Capital (+) CEO Power (-) Board Independence (+) Board Size (+)
2017	Bose et al. 2017	205 Sample Year	2007-14	OLS	green banking disclosure	Board Size Board Independence Institutional Ownership Foreign Ownership CEO Pay Female Director Government Ownership	Board Size (+) Institutional Ownership (+) Government Ownership (+) CEO Pay (-)

Appendix C: Prior studies from developed and other developing countries – Relationship between voluntary disclosure and firm performance (effects)

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Firm Performance Indicators	Independent: Disclosure	
2005	Abdolmohammadi	58 Fortune 500 firms	1993-97	Regression	Market Capitalization	Intellectual Capital Disclosure	A significant positive effect.
2006	Murray et al.	100 UK firms	1988 to 97	Regression analysis	Share Price	Social Disclosure	Social disclosure does not affect share price
2007	Brine et al.	277 listed Australian firms	2005	Cross sectional regression analysis and OLS	ROA ROE ROS	Social Responsibility (Sustainability Disclosure)	Social responsibility does not have any effect on ROA ROE ROS
2007	Montabon et al.	45 US and internation al firms			ROI Sales Growth	Environmental Disclosure	Environmental disclosure positively affects ROI and sales growth
2008	Prado-Lorenzo et al.	117 Spanish listed Firms	2004 for disclosure 2004-05 for growth	Multiple linear regression	Sales Growth	Social Disclosure	Social Disclosure positively affects Sales growth
2009	Chi	208 listed Firm In Taiwan	2004 disclosure 2005 firm performance		Tobin's Q	Corporate Governance Disclosure	Corporate governance disclosure positively affects Tobin's Q
2009	Hassan et al.	80 Egyptian firms	1995 to 2002	Panel data analysis	Firm Value	Voluntary Disclosure	There was no significant impact from voluntary disclosure to market value

Appendix C: Prior studies from developed and other developing countries – Relationship between voluntary disclosure and firm performance (effects) (continued)

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Firm Performance Indicators	Independent: Disclosure	
2010	Aras et al.	40 listed firms on the Istanbul Stock Exchange	2006 (Disclosure) 2007 (Firm Performance)		ROE ROA ROS	Social Responsibility Disclosure	Social responsibility disclosure does not affect ROE, ROA, ROS
2010	Choi et al.	1222 firms years From Korea	2002-08	Panel data analysis	ROE ROA Tobin's Q	Social Responsibility Disclosure	Social Responsibility Disclosure Positively affects ROE, ROA & Tobin's Q
2010	Mishra & Suar	150 Indian firms (101 listed and 49 non-listed)	2003-04 to 2005 to 06	Hierarchical regression	Industry Adjusted ROA Non-Financial Firm Performance (NFP)	Social Reporting	Social reporting positively affects industry adjusted ROA and NFP
2010	Veronica & Bachtiar	87 listed firms from Indonesia	2003	Regression analysis	Return on Equity for Next Year Stock Return for Next Year	Social Disclosure	Social disclosure positively affects return on equity and stock returns
2011	Anam et al.	91 listed firms in Malaysia	2002 & 06	Multiple OLS	Market Capitalization	Intellectual Capital Disclosure	A significant positive effect

Appendix C: Prior studies from developed and other developing countries - Relationship between Voluntary Disclosure and Firm performance (effects) (Continued)

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent : Corporate Governance Variables	
2011	Kwanbo	20 listed firms in Nigeria Stock Exchange	2005-09	Multiple Regression Analysis	Earnings Per Share	Social Disclosure	Social Disclosure does not have any significant effect on earning per share.
2011	Chen & Wang	141 Chinese firms	2007 for disclosure 2008 for performance	Multiple Regression	ROA (next year) ROS (next year) Growth rate of sales (next year)	Social Reporting	Social Reporting positively effects ROA (next year), ROS (next year), Growth rate of sales (next year)
2011	Lima Crisóstomo et al.	78 Brazilian firms	2001-06	Regression	ROA Tobin's Q	Social Responsibility Disclosure	Social Responsibility Disclosure negatively effects Tobin's Q
2011	Oeyono et al.	Top 48 Indonesian corporations	2003-07	Spearman's rho correlation coefficient	Profitability (EDITDA) Earnings Per Share	Corporate Social Reporting	Social Disclosure effects positively Profitability (EDITDA) Earning Per Share in a weak form.
2012	Ribeiro Soriano et al.	428 Listed firms in Taiwan	2006 (Disclosure) 2007 (Firm Performance)	Hierarchical Regression	Market to Book Ratio Return on Asset	Human Capital Disclosure	A significant positive effect.

Appendix C: Prior studies from developed and other developing countries - Relationship between Voluntary Disclosure and Firm performance (effects) (Continued)

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent : Corporate Governance Variables	
2012	Uyar & Kılıç	129 firms listed in the Istanbul Stock Exchange.	2010	Multiple Regression Analysis	Market Capitalization Market Capitalization (after six months of year ending) Natural logarithm of market value to book value of equity Natural logarithm of market value to book value of equity (after six months of year ending)	Voluntary disclosure	Voluntary disclosure positively effects Market Capitalization and Market Capitalization (after six months of year ending)
2012	Wibowo	25 listed firms in Indonesia Stock Exchange (IDX)	2005-10	Multiple Regression Analysis	ROA	Social Responsibility Disclosure	Social Responsibility Disclosure positively effects ROA
2013	Garay et al.	7 largest stock exchanges of latin America (Argentina, Brazil — Bovespa and Novomercado — Chile, Colombia, Mexico and Peru)	2006,2008, 2010		Tobin's Q ROA	Internet-based corporate disclosure	Internet-based corporate Disclosure positively effects Tobin's Q and ROA.

Appendix C: Prior studies from developed and other developing countries - Relationship between Voluntary Disclosure and Firm performance (effects)

(Continued)

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent : Corporate Governance Variables	
2013	Kim et al.	162 Korean Firms	2008	Panel regression analysis	Price to Book ratio Return on Asset Operating Profit Margin	Firm transparency (Financial, Governance, Operational and Social disclosure)	Firm transparency positively effects Return on Asset and Operating Profit Margin
2013	Yusoff et al.	30 Malaysian listed firms	2009-11	Multiple Regression Analysis	(ROA+ROE+ROS) Next year	Social Responsibility Disclosure	Social Responsibility does not have any significant effect on ROA ROE ROS
2014	Ahamed et al.	3 Malaysian Listed Firms	2007-11	OLS	ROA ROE	Social Responsibility Disclosure	Social Responsibility Disclosure positively effects ROE and ROA
2014	Qiu et al.	152 firms from FTSE350	2005-09	Regression Analysis	Stock Price Residual Income	Environmental & Social Disclosure	Environmental & Social Disclosure positively effects stock price and residual income.
2015	Basah & Khairi	72 Firms in Jordan	2009-13	The Granger test	ROA	Voluntary Disclosure	Voluntary Disclosure positively effects ROA
2015	De Klerk et al.	89 UK Firms	2007-08	Regression Analysis	Share Price (Market value of the equity)	Social Disclosure	Social Disclosure positively effects stock price (Market value of the equity)

Appendix C: Prior studies from developed and other developing countries - Relationship between Voluntary Disclosure and Firm performance (effects)

(Continued)

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent : Corporate Governance Variables	
2015	Elzahar et al.	102 UK firms.	2006-10	OLS	Market Value of the Equity	Key performance indicators' disclosure	Key performance indicators' disclosure positively effect Market Value of the Equity
2015	Khlif et al.	168 listed firm in South Africa	2004-2009	Multiple Regression Analysis	Tobin's Q	Social and Environmental Disclosure	Social and Environmental Disclosure Positively effects Tobin's Q
2016	Chen et al.	54 Engineering News Record firms	2012	Hierarchical stepwise regression	ROA ROS Tobin's Q Revenue Growth	Various Categories of Environmental Disclosure	Pollution related environmental disclosure negatively effects ROA, ROS, Tobin's Q, Revenue Growth Environmental governance related disclosure positively effects ROA, ROS, Revenue Growth
2016	Cheng et al.	805 and 813 Chinese firms	2008-09 for disclosure 2009-10 for growth	Regression Analysis	ROA (next year) Market Return (next year) Tobin's Q (next year)	Social Disclosure	Social Responsibility Disclosure Positively effects next year ROA

Appendix C: Prior studies from developed and other developing countries - Relationship between Voluntary Disclosure and Firm performance (effects)

(Continued)

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent : Corporate Governance Variables	
2016	Laskar & Maji	28 listed Indian Firms	2008-09 to 2013-14	Generalised least squares (GLS)	Market to Book Ratio	Corporate Social Responsibility Disclosure	Corporate Social Responsibility Disclosure positively effects Market to Book Ratio
2016	Li et al.	475 Chinese listed firm	2013 and 14	OLS	ROA	Environmental Disclosure	Environmental Disclosure Negatively effects ROA
2016	Mathuva & Kiweu	212 Kenyan Firms	2008-13	Panel OLS	ROA ROE	Social and Environmental Disclosure	Social and Environmental Disclosure Negatively effects ROA & ROE
2016	Nekhili et al.	98 French Firms	2000-04	3SLS	Market Value	R&D narrative disclosure	There no significant impact from R&D narrative disclosure to Market value
2016	Nor et al.	100 Malaysian Firms	2011	Multiple Regression Analysis	ROA ROE EPS Profit Margin	Environmental Disclosure	Environmental disclosure positively effects Profit Margin
2016	Platonova et al.	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)	2000-14	Panel data regression	ROA ROA next year	Social Disclosure	Social Disclosure positively effects ROA, ROA next year

Appendix C: Prior studies from developed and other developing countries - Relationship between Voluntary Disclosure and Firm performance (effects) (Continued)

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent : Corporate Governance Variables	
2016	Reverte	35 firms from Spain	2007-11	Multiple Regression	Share Price of a Firm	Social Disclosure	Social Disclosure positively effects Share price
2016	Verbeeten et al.	130 German firms	2005 -08	Regression Analysis	Share Price Return Per Share	Social Disclosure	Social Disclosure positively effects Share price and return Per Share Environmental disclosure negatively effects Share price and return Per Share.

Appendix D: Prior studies from Bangladesh – Relationship between voluntary disclosure and firm performance (effects)

Year	Authors	Sample Descriptions		Statistical Method	Test Variables		Significant Results
		Firm	Year		Dependent: Disclosure	Independent: Corporate Governance Variables	
2012	Ahmed et al.	5 banks		Survey	Social Reporting	ROA EPS Price Earnings Ratio	No significant effects
2015	Hossain et al.	131 firms	2008-12	Regression analysis	Corporate Social Disclosure	ROE ROA Tobin's Q	ROE (+) ROA (+)
2015	Ahmed & Habib	25 banks	2008-12	Regression analysis	Corporate Social Reporting	Net Profit After Tax (NPAT),	No significant effects
2016	Ahmed	30 banks	2009-12 2010-13	Regression analysis	Corporate Social Reporting	ROE for next year ROA for next year Average Market Value of Share for next year	No significant effects
2016	Islam & Rahman	1 bank	2010-14	Regression analysis	Corporate Social Reporting	Dividends Per Share (DPS), Net Profit After Tax (NPAT), Economic Value Added (EVA), Market Value Added (MVA), EPS, ROA, ROE, ROI	Dividends Per Share (DPS), Net Profit After Tax (NPAT), Economic Value Added (EVA), Market Value Added (MVA), EPS, ROA, ROE, ROI

Appendix E: Voluntary Disclosure Items

Voluntary Disclosure Items

	Main Category of Disclosure	Sub-category of Disclosure	Disclosure Details
Voluntary Disclosure	**Social Disclosure**	**Strategic/ long term social disclosure**	1. Existence of committee for social affairs.
			2. Board takes care about social issues as a significant matter.
			3. Governance encompasses ethics, transparency and accountability.
			4. A commentary on behalf of the board about the key relationship with employee and other significant stakeholders.
			5. Firm policy to promote social welfare.
			6. Key person's (CEO or chairman) views about social issues.
			7. CEO statement about considering social issues to the shareholders/ stakeholders.
			8. A statement that the firm maintains regular review of social factors.
			9. Firm has specific policy for maintaining human rights.
			10. Firm has a specific code of conduct to main non-discrimination in regards to gender, race, religion or ethnic group.
			11. Firm activities are affiliated with International Labour Organization.
			12. Firm has a specific policy about child labour.
			13. Firm has a specific policy about working hour and overtime payment.
			14. Firm has specific and clear guideline about employee promotion
			15. Firm has faculties about staff training, education, prevention and control program to manage or avoid work-related injuries.
			16. Firm has a budget for staff welfare.
			17. Amount spent on staff welfare has been disclosed.
			18. Firm has a clear guideline to handle complained about harassment or abuse of any employee at any form.
			19. Firm has a specific policy regarding security and employment of workers

Voluntary Disclosure Items (Continued)

	Main Category of Disclosure	Sub-category of Disclosure	Disclosure Details
Voluntary Disclosure	**Social Disclosure**	**Current/ short term social disclosure**	20. Community involvement or donation on social issues.
			21. Firm has a policy to prioritize greater benefit for the welfare of their society.
			22. Firm has policies and procedure to about anti-corruption.
			23. Firm has policy to provide a fair chance to work as a trainee to various education institute students.
			24. Firm has policy to maintain local and national culture and protection of personal information.
			25. Firm has a policy about disadvantage side of the society.
			26. Firm has a policy to sponsor regional of national educational, cultural event.
			27. A statement about product safety assurance.
			28. A statement about quality assurance in regards to service or product.
		General social disclosure	29. Any moral statement for considering social issues.
			30. Any statement about social welfare for public awareness.
	Environmental Disclosure	**Strategic/long term environmental disclosure**	1. Existence of environmental committee.
			2. Executive performance is associated with environmental performance.
			3. CEO statement about environmental performance to the shareholders/ stakeholders.
			4. Budget on environmental policy.
			5. Amount paid for developing environmental issue.
			6. Employee training on environmental management and operation.
			7. Internal environmental award.
			8. Key performance indicator for environmental issues is discussed.
			9. Environmental risk assessment process.
			10. Implementing environmental policy.
			11. Following any particular standard for guideline for environmental reporting.
			12. Referring any standard in the report.
			13. Any affiliation in regards to product or service providing.

Voluntary Disclosure Items (Continued)

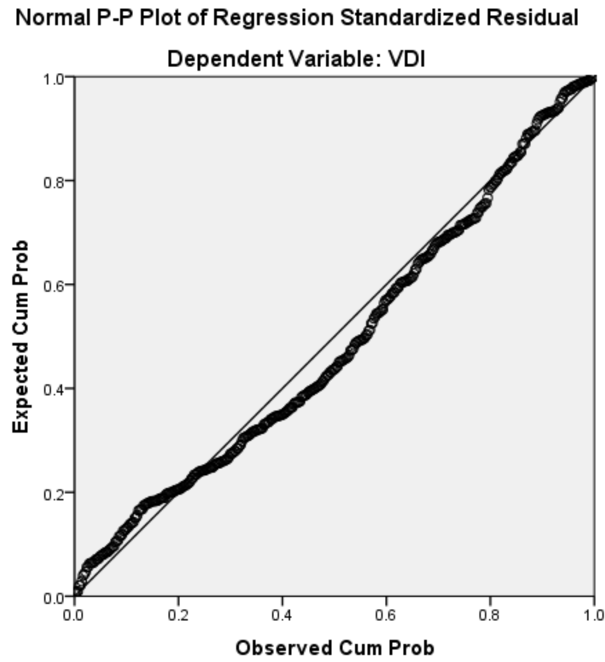
	Main Category of Disclosure	Sub-category of Disclosure	Disclosure Details
Voluntary Disclosure	Environmental Disclosure	Current/ short term environmental disclosure	14. Community involvement or donation on environmental issues.
			15. Waste management.
			16. Any form of Pollution control process
			17. Recycling process.
			18. Conservation of natural resources.
			19. Energy savings.
			20. Direct energy usage.
			21. Indirect energy usage.
			22 Any award from local or national stakeholder.
			23. Any award or certification from international Stakeholders
			24. Any information about fine or non-compliance.
			25. Any potential threat about environmental issues.
		General environmental disclosure	26. Any general statement about environmental issues.
			27. Any moral statement about following environmental issues.
			28. Any statement about environment for public awareness.
	Intellectual Capital Disclosure	Internal Capital	1. Management process.
			2. Copyrights, patents and trademarks.
			3. Financial relations.
			4. Networking system.
			5. Innovative idea.

Voluntary Disclosure Items (Continued)

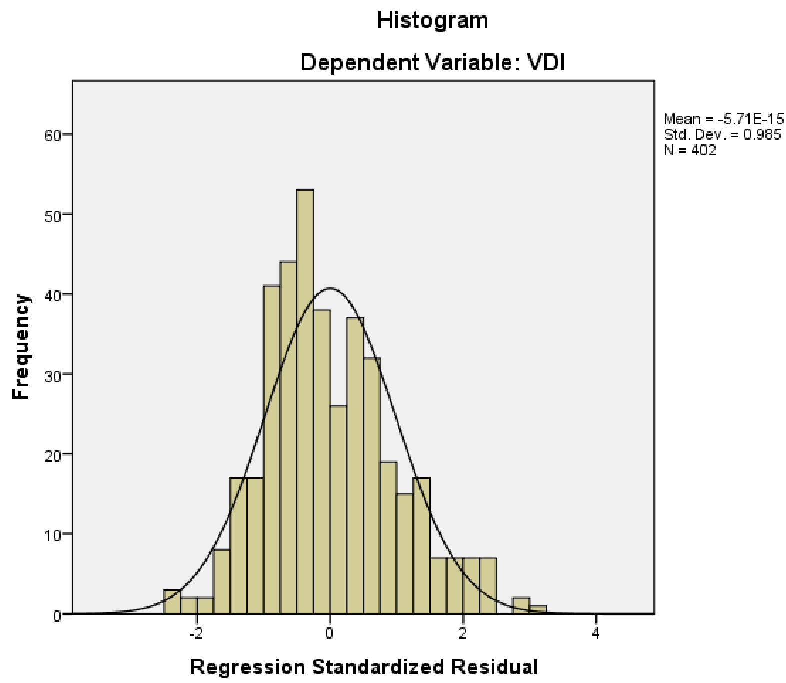
	Main Category of Disclosure	Sub-category of Disclosure	Disclosure Details
Voluntary Disclosure	**Intellectual Capital Disclosure**	**External Capital**	6. Brands.
			7. Customer loyalty.
			8. Focus on customer.
			9. Firm image and reputation.
			10. Distribution channel.
			11. Business collaborations.
			12. Franchising agreement.
			13. Research & development.
			14. Positive feedback from customers.
		Human Capital	15. Employee education.
			16. Training.
			17. Work-related knowledge.
			18. Employee health & safety.
			19. Career development.
			20. Employee welfare.
			21. Entrepreneurial spirit, proactive and reactive abilities.
			22. Opportunity for diverse range of people.

Appendix F: Diagnostic test results for research model one

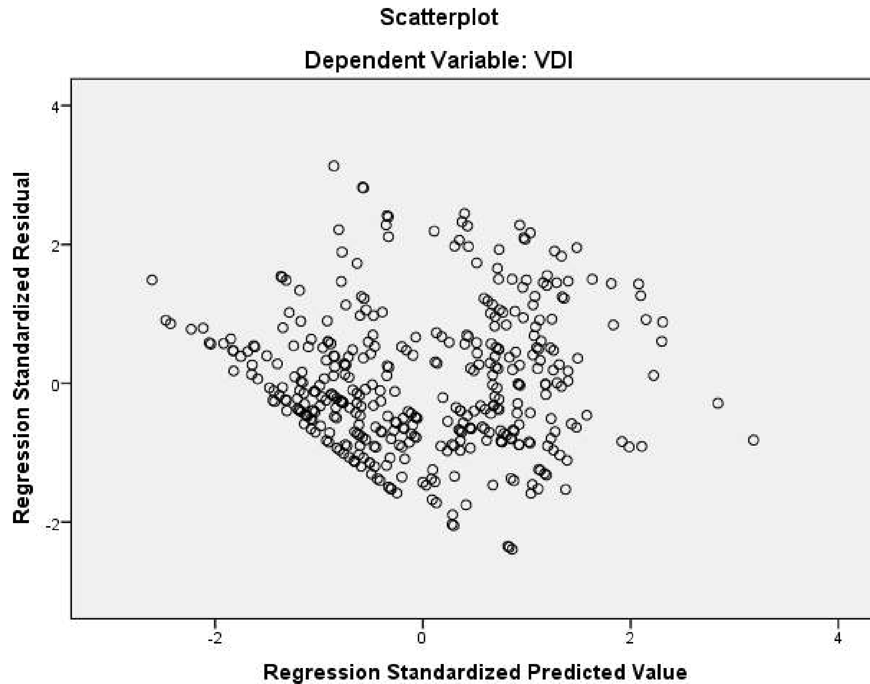
a) Normality Test: P Plot



Normality Test: Histogram



b) Heteroscedasticity Test: Scatter plot



c) Endogeneity Test:

CEO Duality_resid = 0
F(1, 388) = 0.01
Prob > F = 0.9218

Board Composition _resid = 0
F(1, 388) = 0.24
Prob > F = 0.6210

Board Size_resid = 0
F(1, 387) = 0.04
Prob > F = 0.8351

Sub-committee _resid = 0
F(1, 387) = 1.01
Prob > F = 0.3166

Audit Committee Composition _resid = 0
F(1, 387) = 1.69
Prob > F = 0.1945

Foreign Ownership _resid = 0
F(1, 387) = 1.15
Prob > F = 0.2844

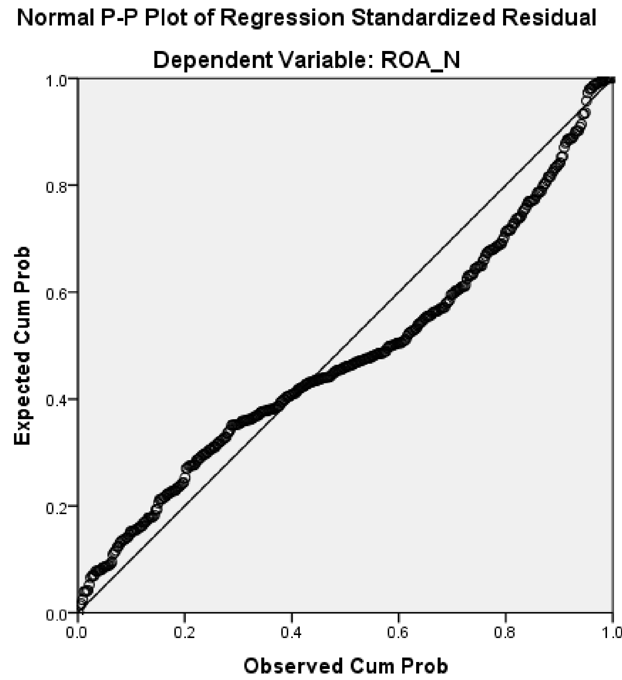
Director ownership_resid = 0
F(1, 387) = 2.33
Prob > F = 0.1281

Institutional Ownership_resid = 0
F(1, 387) = 1.27
Prob > F = 0.2601

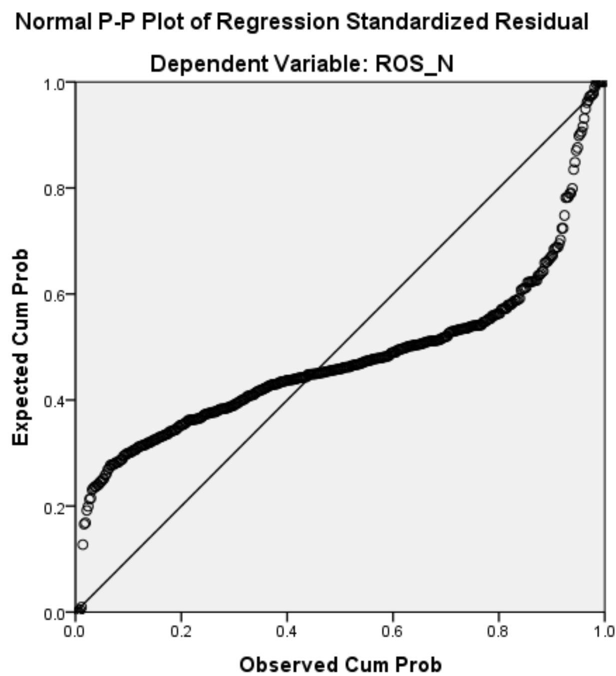
Appendix G: Diagnostic test results for research model two

a) Normality Test: P Plot

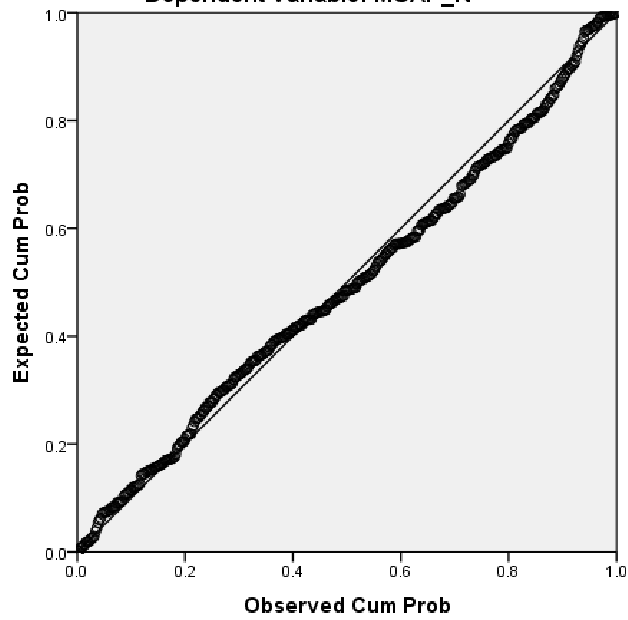
Return on Asset (ROA)



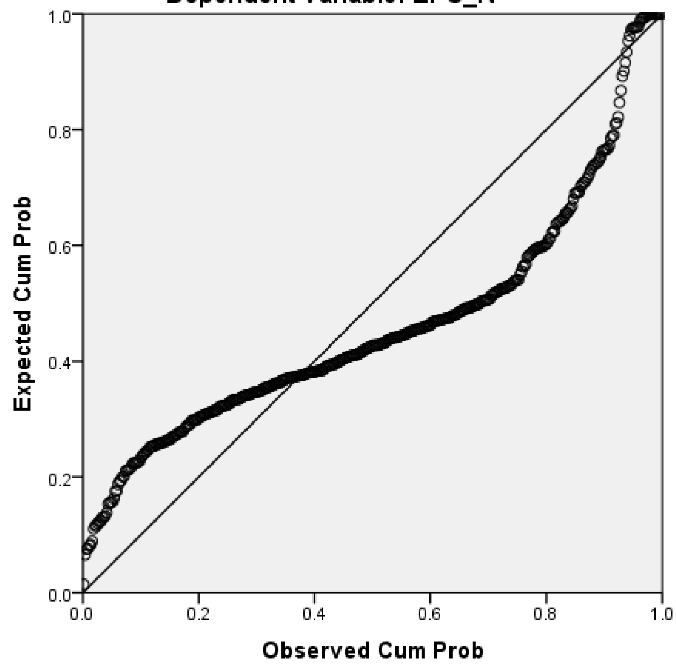
Return on Sales (ROS)



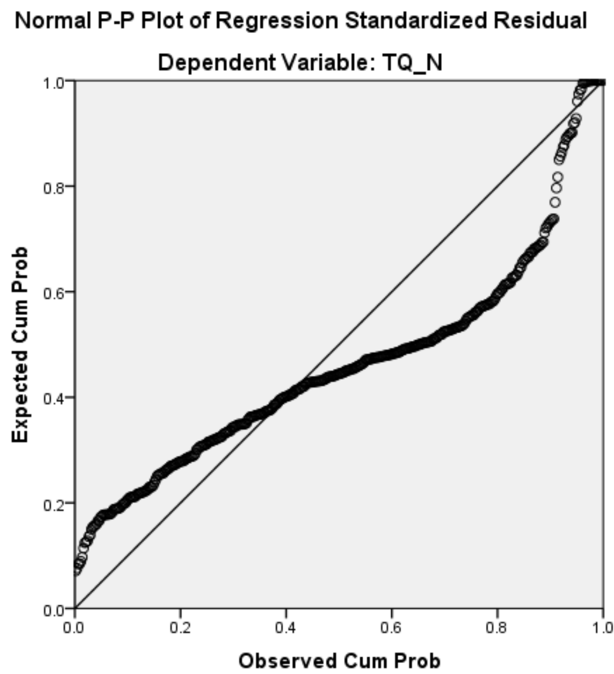
Market Capitalization (MCAP)



Earnings per Share (EPS)



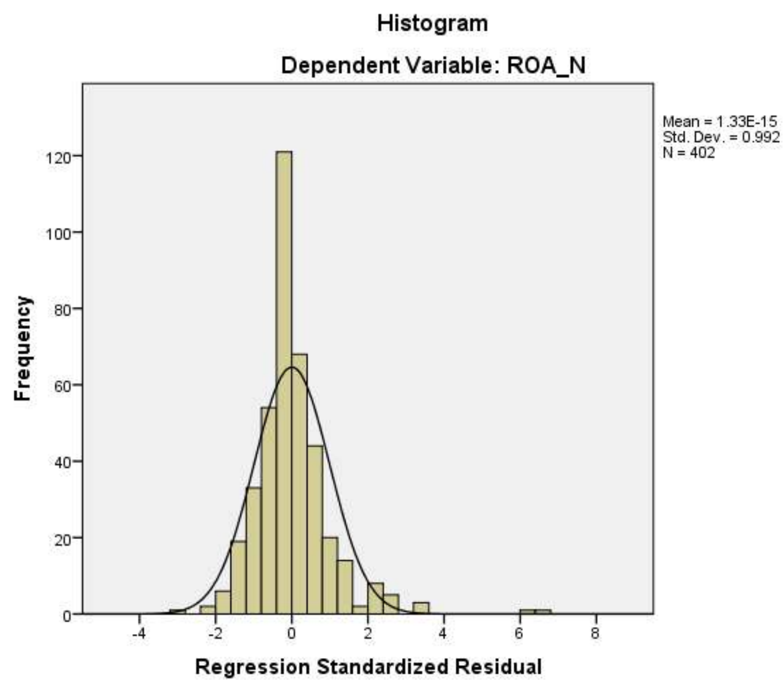
Tobin's Q



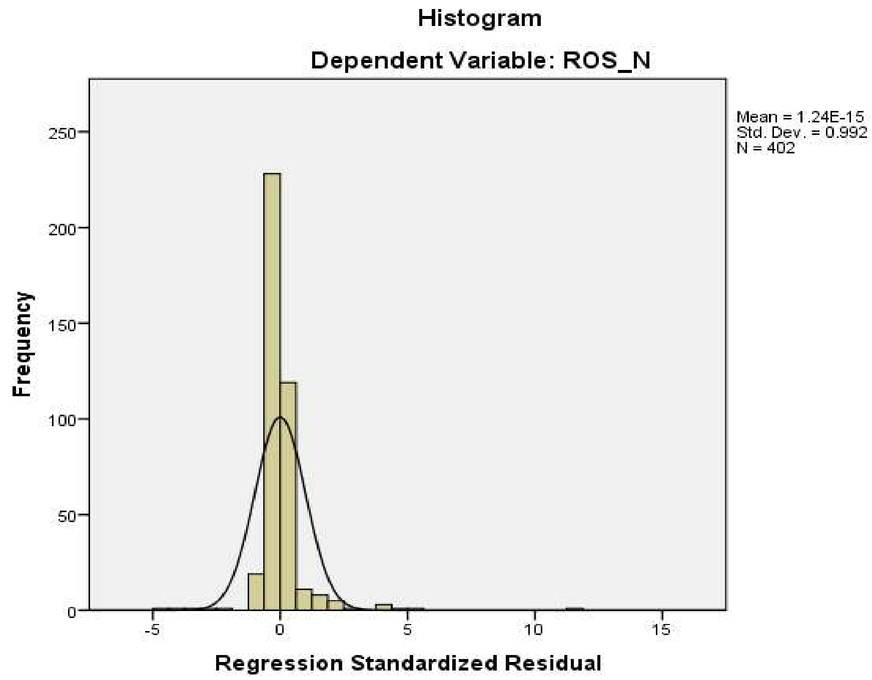
Normality Test: Histogram

Residual Test/Histogram–Normality Test

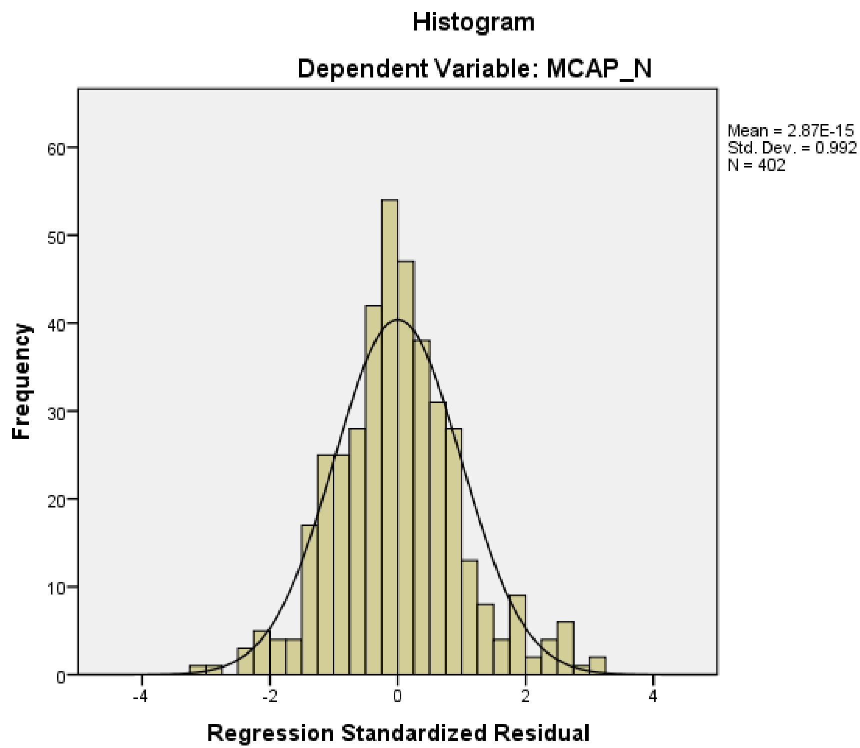
Return on Asset (ROA)



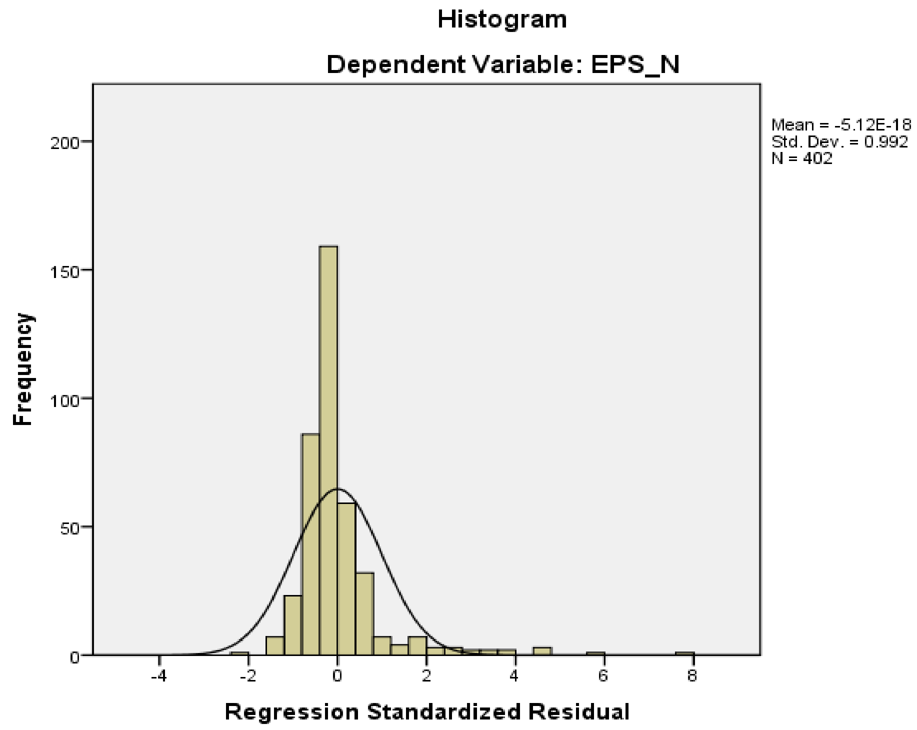
Return on Sales (ROS)



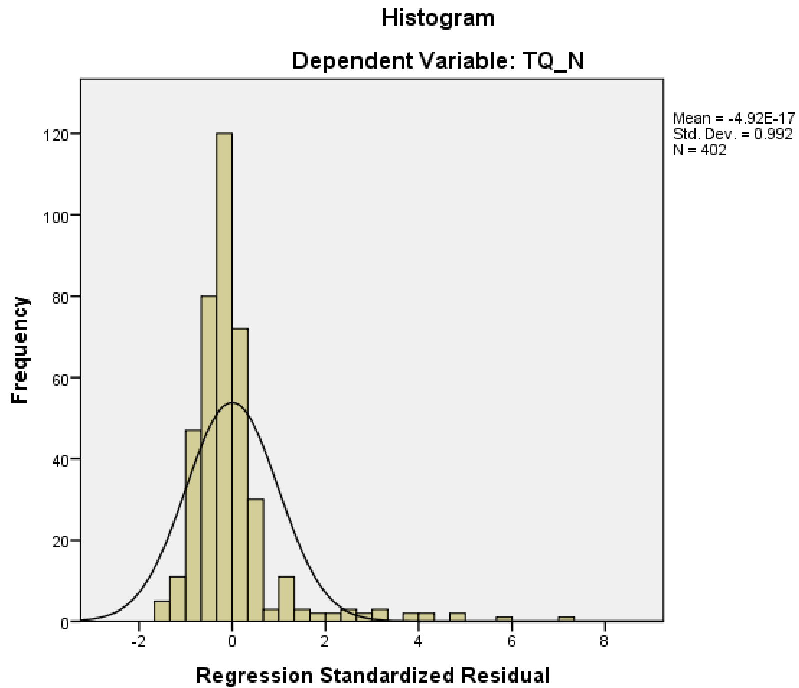
Market Capitalization (MCAP)



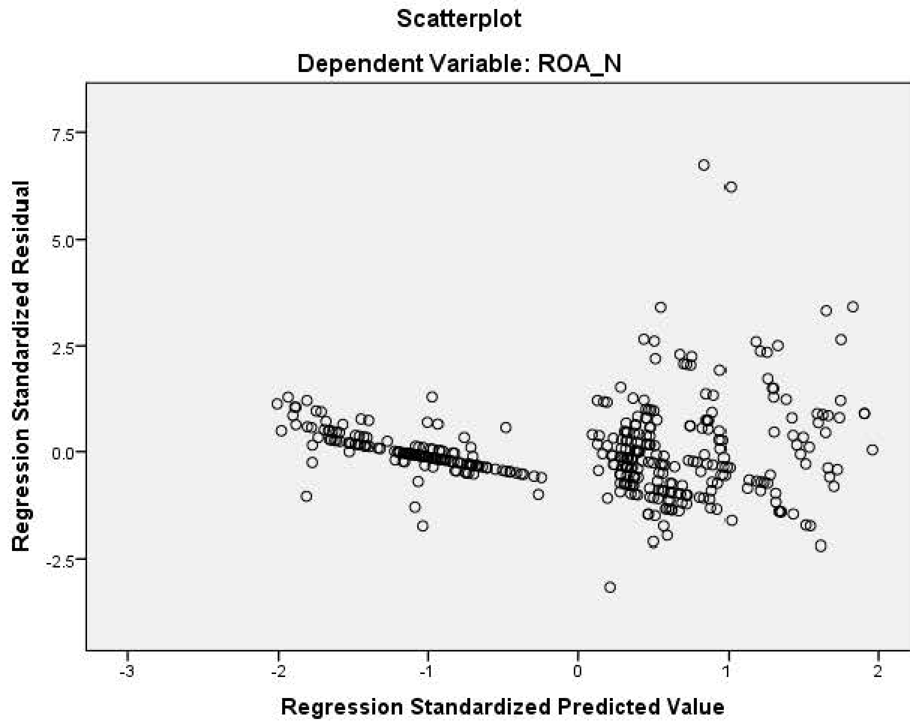
Earnings per Share (EPS)

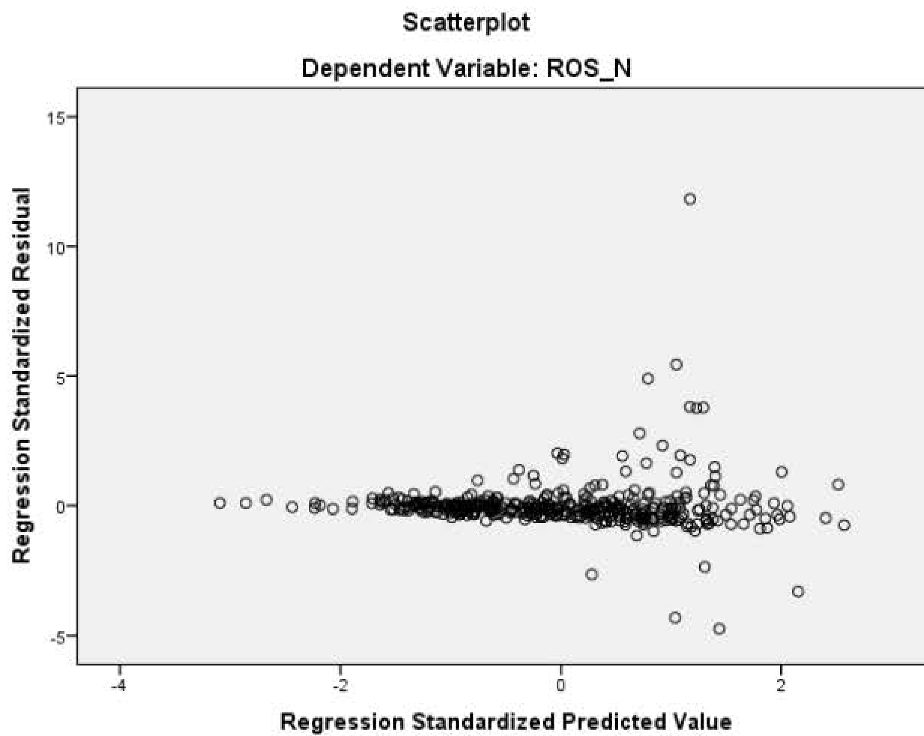


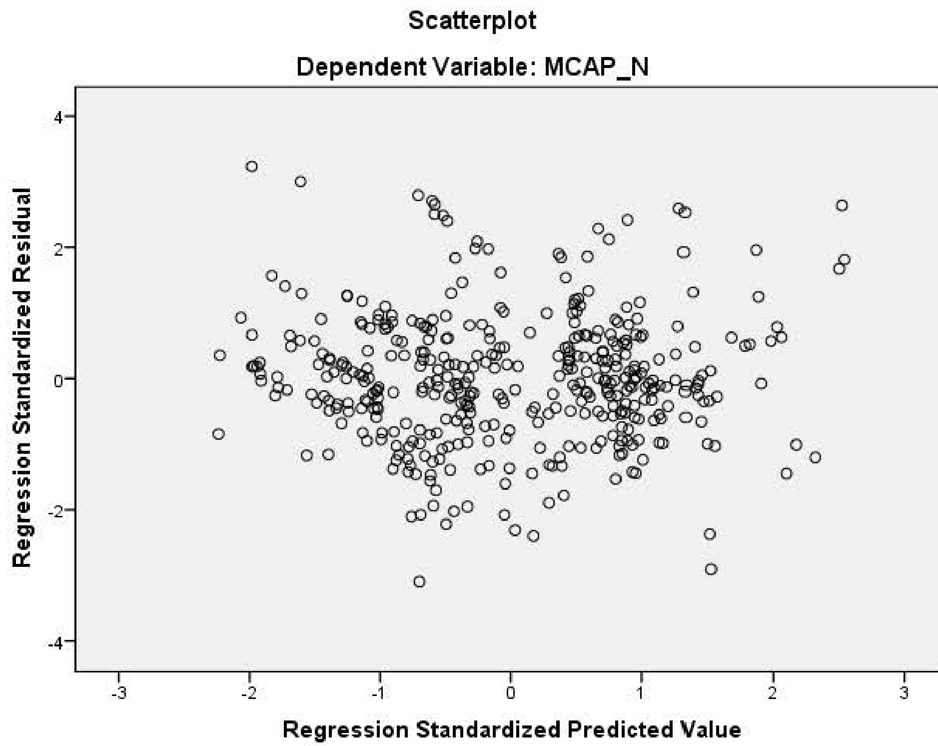
Tobin's Q

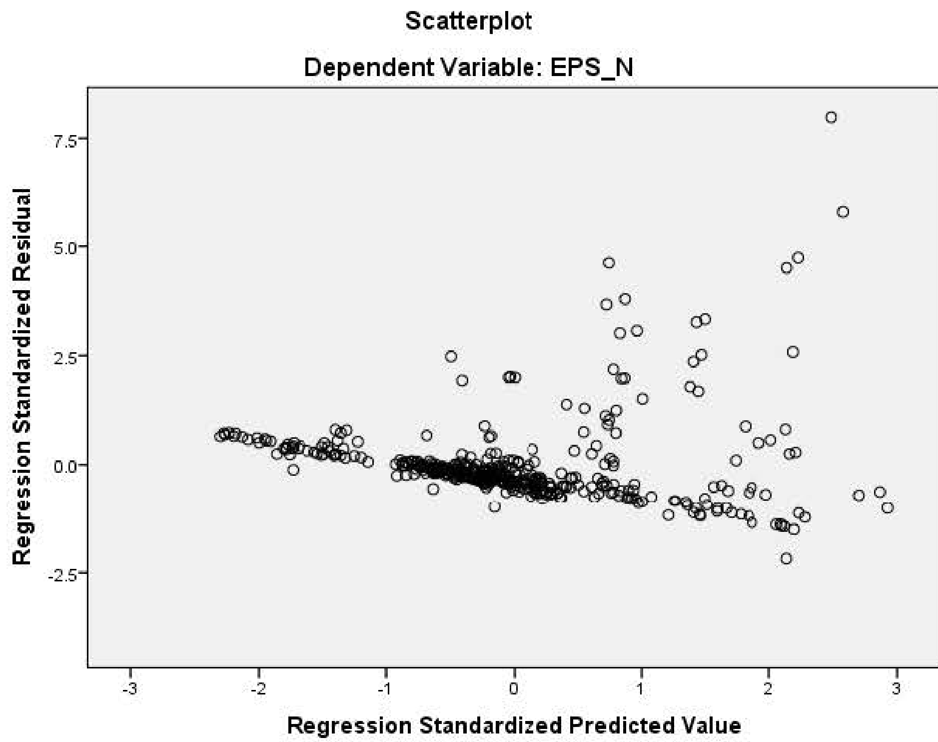


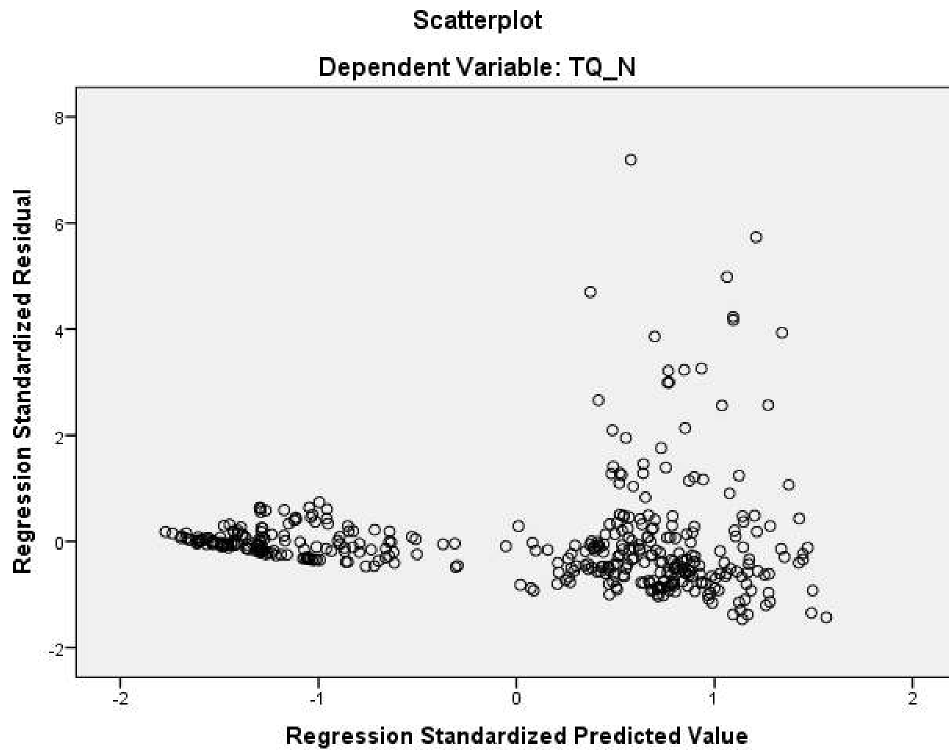
b) Heteroscedasticity Test: Scatter plot






Scatterplot
Dependent Variable: MCAP_N
Regression Standardized Residual
4
2
0
-2
-4
-3
-2
-1
0
1
2
3
Regression Standardized Predicted Value


Scatterplot
Dependent Variable: EPS_N
Regression Standardized Residual
7.5
5.0
2.5
0.0
-2.5
-3
-2
-1
0
1
2
3
Regression Standardized Predicted Value



c) Endogeneity tests:

<table>
<tr><td>ROA
(1) FINAL_VDI_resid = 0

F(1, 394) = 0.58
Prob > F = 0.4482</td><td>ROS
(1) FINAL_VDI_resid = 0

F(1, 394) = 7.60
Prob > F = 0.0061</td></tr>
<tr><td>MCAP
(1) FINAL_VDI_resid = 0

F(1, 394) = 1.52
Prob > F = 0.2188</td><td>EPS
(1) FINAL_VDI_resid = 0

F(1, 394) = 0.31
Prob > F = 0.5770</td></tr>
<tr><td colspan="2">Tobin’s Q
(1) FINAL_VDI_resid = 0

F(1, 394) = 1.24
Prob > F = 0.2659</td></tr>
</table>

Appendix H: Robustness tests for research model one

Relationship between corporate governance characteristics and voluntary disclosure from alternative measurement (2SLS)

Variable	Coefficient	t-Statistic	Prob.
C	-0.944365	-6.867343	0.000
CEO Duality	-0.075469	-2.027525	0.043**
Board Size	-0.007895	-0.416317	0.677
Board Composition	-0.009617	-0.852138	0.394
Sub-committee	0.064751	3.410248	0.000***
Audit Committee Composition	0.024506	2.061069	0.040**
Foreign Ownership	0.060906	2.092681	0.037**
Director Ownership	-0.031059	-3.137612	0.001***
Institutional Ownership	-0.016852	-1.296618	0.195
Firm Size	0.049618	7.279959	0.000***
Leverage	0.000262	0.383800	0.701
Industry	0.049375	3.443685	0.000***
Firm Performance	0.003209	0.715547	0.474

Appendix I: Results Robustness tests one for research model two

$$ROA_{it+1} = \alpha + \beta 1ROA_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.1$$

Variables	Coefficient	t-Statistic	Prob.
Current Year ROA	0.757	8.797	0.00***
Current Year : VDI	0.061	2.507	0.01***
Firm Size	-0.001	-1.098	0.27
Leverage	-0.000	-0.006	0.99
Industry	-0.018	-2.669	0.00***
CEO Duality	-0.037	-1.681	0.09***
Board Composition	0.003	0.276	0.78

$$ROS_{it+1} = \alpha + \beta 1ROS_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.2$$

Variables	Coefficient	t-Statistic	Prob.
Current Year ROS	0.777	8.284	0.00***
Current Year : VD	0.158	2.196	0.02***
Firm Size	-0.018	-2.569	0.01***
Leverage	-0.000	-1.095	0.27
Industry	-0.019	-1.244	0.21
CEO Duality	-0.073	-2.439	0.01***
Board Composition	-0.038	-0.878	0.38

$$MCAP_{it+1} = \alpha + \beta 1MCAP_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.3$$

Variables	Coefficient	t-Statistic	Prob.
Current Year MCAP	0.937	29.158	0.00***
Current Year : VD	0.352	2.0965	0.03***
Firm Size	-0.002	-0.108	0.91
Leverage	0.003	1.145	0.25
Industry	-0.158	-4.322	0.00***
CEO Duality	-0.147	-1.474	0.14
Board Composition	0.639	3.011	0.00***

$$EPS_{it+1} = \alpha + \beta 1EPS_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.4$$

Variables	Coefficient	t-Statistic	Prob.
Current Year EPS	1.102	16.768	0.00***
Current Year : VD	6.111	1.631	0.01***
Firm Size	-0.352	-1.533	0.12
Leverage	0.005	0.622	0.53
Industry	-0.603	-1.225	0.22
CEO Duality	-4.807	-1.656	0.09***
Board Composition	1.287	0.877	0.38

$$TOBINQ_{it+1} = \alpha + \beta 1TOBINQ_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} \quad + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.5$$

Variables	Coefficient	t-Statistic	Prob.
Current Year Tobin's Q	0.753	10.650	0.00***
Current Year : VD	0.650	2.052	0.04***
Firm Size	-0.011	-0.318	0.75
Leverage	0.002	0.955	0.34
Industry	-0.253	-2.880	0.00***
CEO Duality	-0.316	-2.788	0.00***
Board Composition	0.672	2.758	0.00***

$$VDI_{it+1} = \alpha + \beta 1ROA_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.6$$

Variables	Coefficient	t-Statistic	Prob.
Current Year ROA	0.005	0.286	0.77
Current Year : VD	1.001	93.753	0.00***
Firm Size	-0.000	-0.100	0.91
Leverage	-0.000	-0.913	0.36
Industry	0.008	2.789	0.00***
CEO Duality	-0.003	-2.993	0.00***
Board Composition	0.006	0.758	0.44

$$VDI_{it+1} = \alpha + \beta 1ROS_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.7$$

Variables	Coefficient	t-Statistic	Prob.
Current Year ROS	0.005	1.747	0.08**
Current Year : VD	1.001	92.653	0.00***
Firm Size	0.000	0.046	0.96
Leverage	-0.0000	-1.021	0.30
Industry	0.008	3.005	0.00***
CEO Duality	-0.004	-3.210	0.00***
Board Composition	0.006	0.776	0.43

$$VDI_{it+1} = \alpha + \beta 1MCAP_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.8$$

Variables	Coefficient	t-Statistic	Prob.
Current Year MCAP	0.001	0.648	0.51
Current Year : VD	0.999	83.841	0.00***
Firm Size	-0.000	-0.570	0.56
Leverage	-0.000	-0.361	0.71
Industry	0.008	3.046	0.00***
CEO Duality	-0.003	-2.924	0.00***
Board Composition	0.008	0.922	0.35

$$VDI_{it+1} = \alpha + \beta 1EPS_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.9$$

Variables	Coefficient	t-Statistic	Prob.
Current Year EPS	0.000	0.515	0.60
Current Year : VD	0.999	94.332	0.00***
Firm Size	-0.000	-0.196	0.84
Leverage	-0.000	-0.952	0.34
Industry	0.009	3.221	0.00***
CEO Duality	-0.003	-2.712	0.00***
Board Composition	0.005	0.680	0.49

$$VDI_{it+1} = \alpha + \beta 1TOBINQ_{it} + \beta 2VDI_{it} + \beta 3FS_{it} + \beta 4INDUS_{it} + \beta 5LEV_{it} + \beta 6CD_{it} + \beta 7BC_{it} + \varepsilon_{it} \ldots M2.R1.10$$

Variables	Coefficient	t-Statistic	Prob.
Current Year Tobin's Q	0.000	0.236	0.81
Current Year : VD	1.001	92.420	0.00***
Firm Size	-0.000	-0.020	0.98
Leverage	-0.000	-0.971	0.33
Industry	0.008	2.779	0.00***
CEO Duality	-0.003	-2.407	0.01***
Board Composition	0.006	0.765	0.44

Appendix J: Results Robustness tests two for research model two

$$ROA_{it+1} = \alpha + \beta1SDI_{it} + \beta2FS_{it} + \beta3INDUS_{it} + \beta4LEV_{it} \quad + \beta5CD_{it} + \beta6BC_{it} + \varepsilon_{it} \dots \dots \dots . M2.R2.1$$

	Coefficient	t-Statistic	Prob.
Social Disclosure	0.058	2.352	0.01***
Firm Size	0.003	1.411	0.15
Leverage	-0.000	-1.801	0.07*
Industry	-0.065	-13.087	0.00***
CEO Duality	-0.041	-5.070	0.00***
Board Composition	-0.014	-0.705	0.48

$$ROS_{it+1} = \alpha + \beta1SDI_{it} + \beta2FS_{it} + \beta3INDUS_{it} + \beta4LEV_{it} \quad + \beta5CD_{it} + \beta6BC_{it} + \varepsilon_{it} \dots \dots \dots . M2.R2.2$$

	Coefficient	t-Statistic	Prob.
Social Disclosure	0.045	0.468	0.64
Firm Size	-0.030	-2.518	0.01***
Leverage	-0.001	-0.926	0.35
Industry	-0.011	-0.478	0.63
CEO Duality	-0.062	-2.363	0.01***
Board Composition	-0.090	-1.255	0.21

$$MCAP_{it+1} = \alpha + \beta1SDI_{it} + \beta2FS_{it} + \beta3INDUS_{it} + \beta4LEV_{it} \quad + \beta5CD_{it} + \beta6BC_{it} + \varepsilon_{it} \dots \dots \dots . M2.R2.3$$

	Coefficient	t-Statistic	Prob.
Social Disclosure	1.560	4.415	0.00***
Firm Size	0.518	15.600	0.00***
Leverage	-0.019	-5.381	0.00***
Industry	-0.169	-2.152	0.03***
CEO Duality	-0.336	-1.296	0.19
Board Composition	-0.488	-1.567	0.11

$$EPS_{it+1} = \alpha + \beta1SDI_{it} + \beta2FS_{it} + \beta3INDUS_{it} + \beta4LEV_{it} + \beta5CD_{it} + \beta6BC_{it} + \varepsilon_{it} \dots \dots \dots . M2.R2.4$$

	Coefficient	t-Statistic	Prob.
Social Disclosure	20.262	2.950	0.00***
Firm Size	1.309	3.443	0.00***
Leverage	-0.056	-0.744	0.45
Industry	-9.178	-6.693	0.00***
CEO Duality	-4.036	-2.609	0.00***
Board Composition	2.246	0.592	0.55

$$TOBIQ_{it+1} = \alpha + \beta 1SDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots \ldots \ldots . M2.R2.5$$

	Coefficient	t-Statistic	Prob.
Social Disclosure	1.385	2.240	0.02***
Firm Size	-0.163	-2.447	0.01***
Leverage	-0.006	-1.587	0.11
Industry	-1.450	-13.285	0.00***
CEO Duality	-1.039	-6.112	0.00***
Board Composition	0.026	0.053	0.95

$$ROA_{it+1} = \alpha + \beta 1EDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots \ldots \ldots . M2.R2.6$$

	Coefficient	t-Statistic	Prob.
Environmental Disclosure	0.041	1.314	0.18
Firm Size	0.004	2.018	0.04***
Leverage	-0.001	-1.821	0.06***
Industry	-0.063	-12.763	0.00***
CEO Duality	-0.044	-4.972	0.00***
Board Composition	-0.013	-0.692	0.48

$$ROS_{it+1} = \alpha + \beta 1EDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots \ldots \ldots . M2.R2.7$$

	Coefficient	t-Statistic	Prob.
Environmental Disclosure	0.176	1.214	0.22
Firm Size	-0.035	-2.798	0.00***
Leverage	-0.001	-1.008	0.31
Industry	-0.013	-0.557	0.57
CEO Duality	-0.053	-1.977	0.04***
Board Composition	-0.092	-1.288	0.19

$$MCAP_{it+1} = \alpha + \beta 1EDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots \ldots \ldots . M2.R2.8$$

	Coefficient	t-Statistic	Prob.
Environmental Disclosure	2.490	5.840	0.00***
Firm Size	0.487	16.529	0.00***
Leverage	-0.020	-5.554	0.00***
Industry	-0.154	-2.091	0.03***
CEO Duality	-0.294	-1.044	0.29
Board Composition	-0.504	-1.675	0.09*

$$EPS_{it+1} = \alpha + \beta 1EDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots \ldots \ldots . M2.R2.9$$

	Coefficient	t-Statistic	Prob.
Environmental Disclosure	15.609	1.463	0.14
Firm Size	1.669	4.398	0.00***
Leverage	-0.070	-0.865	0.38
Industry	-8.571	-6.538	0.00***
CEO Duality	-4.762	-2.775	0.00***
Board Composition	2.310	0.598	0.54

$$TOBIQ_{it+1} = \alpha + \beta 1EDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots \ldots . M2.R2.10$$

	Coefficient	t-Statistic	Prob.
Environmental Disclosure	0.933	1.136	0.25
Firm Size	-0.132	-2.063	0.03***
Leverage	-0.007	-1.741	0.08*
Industry	-1.405	-12.84	0.00***
CEO Duality	-1.098	-6.367	0.00***
Board Composition	0.032	0.067	0.94

$$ROA_{it+1} = \alpha + \beta 1ICDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots \ldots . M2.R2.11$$

	Coefficient	t-Statistic	Prob.
Intellectual Capital Disclosure	0.093	3.967	0.00***
Firm Size	0.000	0.523	0.60
Leverage	-0.000	-1.599	0.11
Industry	-0.067	-12.414	0.00***
CEO Duality	-0.039	-5.959	0.00***
Board Composition	-0.019	-1.029	0.30

$$ROS_{it+1} = \alpha + \beta 1ICDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} \quad + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots \ldots . M2.R2.12$$

	Coefficient	t-Statistic	Prob.
Intellectual Capital Disclosure	0.125	1.768	0.07*
Firm Size	-0.034	-3.534	0.00***
Leverage	-0.001	-0.898	0.36
Industry	-0.015	-0.606	0.54
CEO Duality	-0.056	-2.115	0.03***
Board Composition	-0.098	-1.365	0.17

$$MCAP_{it+1} = \alpha + \beta 1ICDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots\ldots M2.R2.13$$

	Coefficient	t-Statistic	Prob.
Intellectual Capital Disclosure	1.434	4.451	0.00***
Firm Size	0.519	17.678	0.00***
Leverage	-0.018	-4.791	0.00***
Industry	-0.160	-2.052	0.04***
CEO Duality	-0.358	-1.422	0.15
Board Composition	-0.559	-1.887	0.05***

$$EPS_{it+1} = \alpha + \beta 1ICDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots\ldots M2.R2.14$$

	Coefficient	t-Statistic	Prob.
Intellectual Capital Disclosure	22.218	3.969	0.00***
Firm Size	1.119	2.831	0.00***
Leverage	-0.048	-0.558	0.57
Industry	-9.224	-7.175	0.00***
CEO Duality	-4.007	-2.507	0.01***
Board Composition	1.087	0.295	0.76

$$TOBIQ_{it+1} = \alpha + \beta 1ICDI_{it} + \beta 2FS_{it} + \beta 3INDUS_{it} + \beta 4LEV_{it} + \beta 5CD_{it} + \beta 6BC_{it} + \varepsilon_{it} \ldots\ldots M2.R2.15$$

	Coefficient	t-Statistic	Prob.
Intellectual Capital Disclosure	2.099	4.118	0.00***
Firm Size	-0.209	-3.846	0.00***
Leverage	-0.005	-1.440	0.15
Industry	-1.480	-12.529	0.00***
CEO Duality	-0.986	-6.561	0.00***
Board Composition	-0.091	-0.192	0.84