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## The Value Relevance of Corporate Social Responsibility Expenditure Evidence from Regulatory Decisions

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### **The Value Relevance of Corporate Social Responsibility (CSR) Expenditure: Evidence from Regulatory Decisions**

In this paper, we examine the value relevance of the corporate social responsibility (CSR) expenditure of Bangladeshi banks from 2007–2014 in response to a regulatory directive on banking firms' engagement in CSR activities. We find a positive association between CSR expenditure and a firm's market value. Evidence of an inverse U-shaped curvilinear association between CSR expenditure and market value suggests that the impact of CSR expenditure on a firm's market value has a certain limit. We also document that unexpected or abnormal components of CSR expenditure comprise value-relevant information. Our study provides empirical evidence to support the value relevance of CSR expenditure as an explanation for why firms should invest in CSR and why they should inform various stakeholders about their CSR activities.

**Keywords** CSR expenditure, value relevance, banking industry, abnormal CSR expenditure, emerging economy

**JEL classification:** G21, M14, M41, M48

Over the last two decades, non-financial information disclosures have gained momentum, including disclosures on corporate social responsibility (CSR) activities<sup>1</sup>, with these now widely used by professionals in the capital market (Gao *et al.*, 2016).<sup>2</sup> Corporate social responsibility (CSR) has attracted the attention of a wider audience due to its inter-generational impact (Simnett *et al.*, 2009, Dhaliwal *et al.*, 2011, Clarkson *et al.*, 2011, Dhaliwal *et al.*, 2012, Herbohn *et al.*, 2014, Plumlee *et al.*, 2015, Cahan *et al.*, 2016, Gao *et al.*, 2016, Jones and Wright, 2017). To date, archival studies on CSR disclosure have mainly focused on its economic consequences, such as its effects on the cost of equity capital, the cost of debt, analysts' behaviour and firm performance. A common feature of these studies is that researchers have used either the issuance of stand-alone CSR reports (e.g., Dhaliwal *et al.*, 2011, Dhaliwal *et al.*, 2012, Dhaliwal *et al.*, 2014) or CSR disclosure scores or indices to test the stated propositions (e.g., Cahan *et al.*, 2016, Gao *et al.*, 2016, Jones and Wright, 2017). A criticism of the use of CSR reports is that it does not necessarily capture the firm's commitment to CSR activities (Gao *et al.*, 2016). Disclosure studies reveal that firms disclose or do not disclose information in accordance with various set agendas (Ullmann, 1985, Wokutch and Spencer, 1987, Abeysekera, 2014).

A firm's actual expenditure on CSR activities can show a firm's commitment to these activities but, to date, very few studies have examined the impact of the firm's actual CSR expenditure on the capital market.<sup>3</sup> Expenditure on CSR activities has a direct impact on firm

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<sup>1</sup> The definition of key CSR concepts is contested and unclear (Baden and Harwood, 2013, Thomson and Bebbington, 2013, Lopatta *et al.*, 2016). Corporate social responsibility (CSR) is defined by the European Commission (2006) 'as a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis'. The term 'CSR' is often used interchangeably with 'sustainability' and 'activities related to social causes' in practice and academic research (Dhaliwal *et al.*, 2014). In the current study, this convention is followed, and CSR expenditure is deemed as commitments to initiate activities related to environmental and social causes.

<sup>2</sup> The important reason for this significant growth of non-financial information disclosures is that the percentage of a firm's market value that can be attributed to tangible assets has reduced from about 80% in 1975 to less than 20% in 2009 (Eccles *et al.*, 2011).

<sup>3</sup> Although Lys *et al.* (2015) examined the relationship between CSR expenditure and firm performance, the authors did not use the firm's actual amount of CSR expenditure. Instead, they used the ASSET4 social and

performance in terms of profit and cash flows (Feng *et al.*, 2015). A recent survey by the Economic Policy Group (EPG) reported that firms in the United States (US) and the United Kingdom (UK) in the Fortune Global 500 spend US\$15.2 billion a year on their CSR activities (Financial Times, 2014). This represents a substantial amount of expenditure. Firms incurring CSR expenditure have attracted their share of criticism. Friedman (1970) argued that CSR activities are an irresponsible use of firms' available resources as these activities do not increase the economic value of firms. The author also argued that CSR expenditure benefits non-shareholder stakeholders and destroys shareholders' economic value (Huang and Watson, 2015). Others have argued that engaging in CSR activities will benefit firms but not at the time when activities are conducted (Feng *et al.*, 2015, Huang and Watson, 2015). These diverse views continue to be contested in relation to the benefits of CSR activities: one stream explains CSR activities from a stakeholder perspective as upholding stakeholder value but destroying shareholder value while the second stream supports the view that CSR activities build shareholder value but with a time lag.

Given that criticism has highlighted the possible adverse impact on shareholders, it becomes pertinent to examine the association between CSR expenditure and market-based value creation. Market-based value creation has assumed a greater importance for firms seeking to attract shareholder investments for growth. [Moreover, firms' expenditure on CSR activities do not represent mere social activities rather it is used as a strategic tool for improving the overall firm performance because this expenditure brings reputation to the firm. In this study, we examine the value-relevance of CSR expenditure in an emerging](#)

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environmental score as a measure of CSR expenditure. Furthermore, the authors reported that CSR expenditure is positively associated with future performance as measured by changes in both return on assets and operating cash flow; however, an insignificant association was found between the market-based performance measure and the total CSR expenditure.

economy, using the case of the banking industry in Bangladesh.<sup>4</sup> We choose an emerging economy because the importance of CSR expenditure is more important in emerging economies for poverty alleviations (World Bank, 2014) in relation to meeting the United Nations' Sustainable Development Goals (SDGs). We choose Bangladesh as a research site because the country made remarkable progress on Millennium Development Goals (MDGs) set by the Bangladeshi government and is expected to increase the economic growth rate to 8 percent in the medium term (World Bank, 2013). The country however remains with a largely economically meager and overpopulated (UK Border Agency, 2012; Begum et al. 2012) which has become a huge social responsibility issue to stakeholders, where the Bangladesh government has developed sustainability plan called perspective plan 2010-2021 to support the country's inclusive growth and poverty reduction goals, with these initiatives aligned with global visions, such as the United Nation's Sustainable Development Goals (SDGs). These initiatives have stimulated the banking industry of Bangladesh to formulate strategies towards achieving the SDGs that is evidenced from the issuance of a regulatory directive for all banks operating in Bangladesh to engage in CSR activities for supporting the country's sustainable development goals.

Additionally, the European Central Bank (2014) has highlighted the growing importance of emerging economies, documenting that 45% of the world's gross domestic product (GDP) and 80% of the world's population are from emerging economies. The sheer importance of emerging economies provided us with the motivation to consider an emerging economy (i.e., Bangladesh) for this study. Furthermore, to the best of our knowledge, a

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<sup>4</sup> Several countries around the world, for example, Brazil, France, Indonesia, Malaysia, Singapore, South Africa and 28 countries in the European Union, have mandated some aspects of CSR disclosure through different reporting mediums. However, India is the first country worldwide where the government has mandated CSR spending of 2% of a firm's last three-year average annual net profit in each financial year, effective from 2014–15 (Manchiraju and Rajgopal, 2017). In 2008, the central bank of Bangladesh (the regulatory body for banking firms in Bangladesh) issued a regulatory directive (non-mandatory) to monitor banks' CSR performance. The central bank placed an emphasis on and is monitoring not only the disclosure of CSR information but also the amount of CSR expenditure made by each bank.

paucity of research is available that shows the capital market impact of the firm's CSR expenditure in an emerging economy. CSR expenditure data is a proprietary information. While Clarkson *et al.*, (2004), Johnstone (2005) and Cho *et al.*, (2012) examine the environmental capital expenditure, CSR expenditure differs from environmental capital expenditure because CSR expenditure is an operating expenditure.<sup>5</sup> For example, a firm records an asset based on the investment from environmental capital expenditure which is an tangible asset while firms' expenditure on CSR activities generate goodwill which is an unrecorded intangible asset. Recently, Moser and Martin (2012) highlighted the importance of CSR expenditure and the difficulty associated with gaining access to the data relating to CSR expenditure. Due to the scarcity of these data, Moser and Martin (2012) also suggested that an alternative research method (i.e., experiments) be followed to observe its empirical effect. However, currently CSR expenditure data is not readily available in many countries in the world except India that makes it difficult to test empirical research questions.

Furthermore, our study focuses on the banking industry because banking firms utilise public resources that, as they are paid for by society (Wu and Shen, 2013), have high public visibility and accountability. Consequently, firms operating in the banking industry are required to provide feedback to the community more frequently than other industries. For example, a banking firm's assets mainly come from depositors, not from shareholders. Moreover, firms operating in the banking industry materially influence the financial well-being of their society and have a large "social footprint". As a result, stakeholder groups have a keen interest in these firms' activities (Simnett *et al.*, 2009). Gautier and Pache (2015) also argued that firms operating in industries that depend on the sale of intangible services, such as the banking industry, need to engage in more CSR activities to appeal to their

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<sup>5</sup> Environmental capital expenditures include firm's investment in equipment and machineries for controlling the effect of firms' activities on the environment (Johnston, 2005) whereas CSR expenditures include firms expenditure on both social and environmental causes e.g., firms expenditure relating to education, health, humanitarian, sports, culture and others.

stakeholders' imaginations and commitment than their counterpart firms.<sup>6</sup> However, as shown in the extant literature, banking industry firms have been excluded from the sample construction in most CSR studies (Wu and Shen, 2013). One of the reasons for excluding banking firms are the valuation parameters differ substantially compared to industrial firms due to the different accounting practices (Graham and King, 2000). Therefore, empirical evidence from the banking industry on the benefits of CSR is rare (Wu and Shen, 2013). This study also originates from these concerns. We choose banking industry in Bangladesh because the regulatory directives issued by the Central bank of Bangladesh is only applicable to banking industry and CSR expenditure data used in this study is only available for banking firms. Moreover, banking firms can play an important role in developing economy to ensure their focus on responsible lending practices with regards to managing direct and indirect risks that can result from lending to firms have environmental and social problems (Carnevale *et al.*, 2012). In addition, Bangladeshi banking sector (represent a large percentage of Bangladeshi capital market) and its multidimensional CSR activities are playing a major role in facilitating its ambitious goal of becoming a developed nation by 2041. This creates an opportunity to empirically understand how firms in this industry deals with CSR which motivated us to focus on banking firms for this study.

The government of Bangladesh (GoB) has undertaken various initiatives to support the CSR activities of corporate entities in Bangladesh. For example, since 2008, the government has revised the corporate taxation rate on CSR expenditure downwards three times to accelerate firms' engagement in CSR activities (GoB, 2008, GoB, 2011, GoB, 2014). Even more important was the issuance of a regulatory directive in 2008 by Bangladesh Bank, the central bank of Bangladesh, that banks' CSR performance and activities should be included

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<sup>6</sup> Although Gautier and Pache (2015) argued for banking firms' philanthropic activities, these activities are considered as broader perspectives of corporate social responsibility (CSR).

in their reports (Bangladesh Bank, 2008).<sup>7</sup> Since 2008, the CSR expenditure of banking firms has increased substantially. For example, in 2014, the CSR expenditure was 12.43 times higher than in 2008 (the year of the directive's issuance) and, also in 2014, it was 22.55 times higher than in 2007 (the year before the directive's issuance). This significant increase in CSR expenditure raises empirical questions about whether this expenditure is value-relevant information for the market and how the capital market is evaluating CSR expenditure. Expenditure on CSR is a more auditable measure of a firm's CSR activities than disclosure of a firm's actual CSR commitment. However, to date, very few studies have examined CSR expenditure and its market relevance in developed<sup>8</sup> or developing countries. Moreover, the regulatory requirements for CSR expenditure presented an exogenous shock to banking firms in Bangladesh, thus providing an ideal empirical setting for this study which, otherwise, would potentially have the endogeneity bias that is usually present in studies examining value relevance. The issuance of this regulatory directive added an interesting dimension to the current study, thus making Bangladesh an interesting research site.

Using a sample of 198 banking firm-year observations from 2007–2014, we analyse the value relevance of Bangladeshi banking firms' CSR expenditure. More specifically, we examine whether there is an association between CSR expenditure and firms' market value. We also examine the value relevance of the different components of CSR expenditure. A two-stage regression is used to assess the value relevance of abnormal (unexpected) and normal (expected) CSR expenditure. In the first stage, the CSR expenditure is regressed on several firm characteristics. The abnormal CSR expenditure is the residual from the first-

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<sup>7</sup> Corporate social responsibility (CSR) reporting is not mandatory under the existing laws in Bangladesh. Firms can voluntarily disclose social responsibility information. While the government of Bangladesh had urged businesses to carry out welfare activities to reflect their commitment to society, in 2008, the central bank of Bangladesh issued a regulatory directive asking all banks and financial institutions to include CSR in their activities and to report on these activities in line with the Global Reporting Initiative (GRI) framework (Bangladesh Bank, 2008).

<sup>8</sup> Lys *et al.* (2015) focused on the relationship between CSR expenditure and firm performance in the US using the ASSET4 social and environmental score as a measure of CSR expenditure. Clarkson *et al.* (2004) examined the value relevance of environmental capital expenditure based on firms from the U.S. pulp and paper industry.



stage regression while the fitted value is the expected CSR expenditure, with the residual considered to be exogenous as it is not determined by firm-specific factors (Gul *et al.*, 2011, Lys *et al.*, 2015). Therefore, the endogeneity concern is addressed. Chegut *et al.* (2011) argued that studies on socially responsible investment have suffered from measurement and estimation errors. In this regard, various sensitivity and robustness analysis are conducted in our study to establish estimation accuracies. We also use Heckman's (1979) two-stage model and propensity score matching (PSM) for addressing the endogeneity arises from selection based on unobservable and observable factors. In addition, we conduct several sensitivity tests to assess the robustness of the main findings.

Our results indicate that banking firms with higher amounts of CSR expenditure are more likely to have higher market value. In other words, banking firms spending greater amounts on CSR activities can benefit due to their higher market value. We also find evidence of a non-linear (inverse U-shaped curvilinear) association between CSR expenditure and firm market value. This suggests that the impact of CSR expenditure on firm market value is associated with increased market value. However, after incurring higher CSR expenditure, a further increase in CSR expenditure is associated with decreased market value. The unexpected (or abnormal) component of CSR expenditure is positively associated with firm market value but no association exists between the expected (or normal) component of CSR expenditure and firm market value. These findings suggest that firms with higher unexpected (or abnormal) CSR expenditure have higher market value. The findings are robust in several statistical tests including the alternative scaling of the valuation model, long-term financial performance and Heckman's (1979) two-stage model.

We contribute to the literature in several ways. Firstly, our study responds to the recent call for research on CSR expenditure by Moser and Martin (2012). To the best of our knowledge, this is one of the first studies that has quantitatively examined the value relevance

of CSR expenditure. Our study, in examining the actual expenditure by a firm on its CSR activities, extends and complements the current CSR literature which has mostly relied on the issuance of CSR reports or on CSR disclosure scores or indices, thus shedding light from a quantitative perspective. Our study also complements the findings of Lys *et al.* (2015) in which the authors showed a positive relationship between the CSR performance score, as a proxy for current CSR expenditure, and future firm performance. Secondly, our study fills the void in the CSR literature on the value relevance of CSR expenditure. The study contributes to a wider understanding of CSR activities in the context of the capital market. Thirdly, by focusing on firms in the banking industry, our study differentiates from prior CSR disclosure studies that have predominantly focused on the so-called ‘environmentally sensitive’ industries. Finally, the findings of this study have important implications for managers, government regulators and policy makers. Our findings suggest that CSR expenditure is value-relevant information and that it positively affects firm value. The findings provide managers, government regulators and policy makers with a new stimulus to develop policies on CSR expenditure to demonstrate their commitment towards becoming socially responsible organisations and to drive positive change by incurring necessary investments for CSR activities.

The remainder of this paper is structured as follows. The following section presents the institutional context. The third section explains the literature review, theoretical framework and hypothesis development. The fourth section explains the methodology of the study. The fifth section provides empirical results with a discussion, while the sixth section provides findings from the sensitivity analyses. The final section concludes the paper.

## INSTUTUTIONAL CONTEXT

Bangladesh, a British colony for approximately 200 years, is an emerging economy in South Asia. It has many of the institutional features of an emerging economy including: the weak

rule of law (Khan, 2003); rampant corruption (Khan, 2003); government control of the press (Muttakin *et al.*, 2015); lack of accountability and transparency (Khan, 2003); government intervention in business activities (Muttakin *et al.*, 2015); and low-quality public governance (Khan, 2003). Taking into consideration Bangladesh's strong economic growth and its increasingly active role in the world economy, Bangladesh has been placed among the 'Next Eleven (N-11)' emerging economies and is regarded as one of the global growth-generating countries in the world (Goldman Sachs, 2011). Bangladesh has been recording growth and consistent economic development by attaining an annual gross domestic product (GDP) growth rate of more than 6% over the last 10 years, including during the Global Financial Crisis (GFC), and aspires to be a middle-income country by 2021 (World Bank, 2017). This progress can largely be attributed to Bangladesh's growing and export-leading industries, its human capital and, above all, its banking institutions which serve as its cornerstone in capital mobilisation.

The disclosure of CSR activities is not mandatory for publicly listed firms in Bangladesh, as per the *Bangladesh Companies Act 1994* (GoB, 1994). However, to accelerate firms' CSR activities, the government of Bangladesh (GoB) issued a statutory regulatory order (SRO) in 2008 that allowed firms to claim a 10% tax rebate based on their actual amount of CSR expenditure (GoB, 2008). Subsequently, the government replaced the 2008 SRO twice more: currently, a firm can claim a tax rebate of 10% on the actual amount of CSR expenditure based on a maximum threshold of Bangladeshi taka (BDT) 120 million or 20% of the firm's total income, whichever is lower (GoB, 2014). However, the government specified certain economic, social and environmental conditions that needed to be met to claim the tax rebate on CSR expenditure. Recent evidence suggests that no banking firms are taking advantage of the tax rebate on CSR expenditure, possibly because the tax laws are complicated (The Financial Express, 2013; 2015).

The banking industry in Bangladesh acts as a leader in supporting its own CSR activities in comparison to other industries in Bangladesh. For instance, in addition to the SRO tax directive applicable to all firms, in 2008, the central bank of Bangladesh issued a regulatory directive for all banks operating in Bangladesh to engage in CSR activities. Although mandatory disclosure of CSR activities by Bangladeshi banks was not required in the directive, it was emphasised that the central bank would monitor CSR activities as an additional dimension of a bank's management efficiency. Furthermore, the central bank now sends a pro forma to all banks annually asking them to submit their annual CSR activities and associated CSR expenditure. Consequently, a noticeable amount is being spent on CSR activities by banking firms.

The focus of most CSR studies in the Bangladeshi context has been to qualitatively analyse CSR activities (e.g., Belal and Owen, 2007, Islam and Deegan, 2008, Belal and Cooper, 2011); to examine the association of philanthropic giving with firm performance and institutional ownership (Bose *et al.*, 2017); or to determine firm-specific factors that influence CSR disclosure (Khan *et al.*, 2012, Muttakin *et al.*, 2018a, Muttakin *et al.*, 2018b). Khan *et al.* (2012) argued that, of all firms in Bangladesh, banking firms disclose the highest level of CSR information whereas other studies have excluded banking firms from their study samples: consequently, there is little understanding of Bangladeshi banking firms' CSR activities.

## LITERATURE REVIEW, THEORETICAL FRAMEWORK AND HYPOTHESIS

### DEVELOPMENT

#### *Literature Review*

A firm's disclosure of its CSR activities provides a signal that declares its accountability to a broader spectrum of stakeholders than to its shareholders alone (Gao *et al.*, 2016). Disclosure

of CSR activities provides information beyond that conveyed in financial disclosures. The most popular parameter for CSR activities in accounting has been the measurement of disclosures. One stream of studies in accounting has focused on the implications of CSR activities disclosure in relation to the firm's valuation (Ingram and Frazier, 1980, Wiseman, 1982) but has shown no consistent results (Huang and Watson, 2015, Cahan *et al.*, 2016, Gao *et al.*, 2016). Another stream of studies has examined the relationship between CSR disclosure measures and firm performance. In exploring this relationship, these studies have mainly examined the environmental aspect of disclosure and contemporaneous economic performance, with the empirical evidence yielding mixed results (Cahan *et al.*, 2016). For example, Margolis *et al.* (2009) conducted a meta-analysis of 251 studies published since 1998 to examine the relationship between CSR and firm performance. The authors found that 59% of studies documented a non-significant relationship while 28% of studies documented a positive relationship and 2% of studies found a negative relationship between CSR and firm performance (either accounting-based or market-based measures of firm performance). The authors excluded 10% of the studies due to non-availability of sample size data.

Simnett *et al.* (2009) showed that firms issuing sustainability reports increased their corporate reputation. This was especially so when the sustainability report was provided with an assurance by the auditors. Dhaliwal *et al.* (2011) showed that the issuance of a stand-alone CSR report by firms in the current year contributed to the reduced cost of equity capital in the following year. The reason highlighted by these authors was that this information assists financial analysts and dedicated institutional investors in making favourable decisions. In another study, Dhaliwal *et al.* (2012) showed that firms issuing a CSR report reduce the analyst forecast error, especially firms in countries where more transparent financial disclosures are required. The measurement of the disclosure of CSR activities has been advanced by constructing indices that combine various types of CSR disclosure activities. For

instance, Lu and Abeysekera (2014), using 121 CSR activities from the GRI framework, constructed a CSR disclosure index that combines various CSR activities by disclosure quantity (frequency count using annual reports), disclosure type (various qualitative and quantitative) and the importance of CSR activities to stakeholders. They examined the influence of stakeholder power and corporate characteristics on the disclosure index. Firms make CSR disclosures that include past, present and future CSR activities which are difficult to audit as much of what is disclosed is qualitative. Moreover, CSR data ratings by different institutions have also been criticised due to the worrisome degree of disagreement, with this indicating the lower validity of CSR ratings (Huang and Watson, 2015). For example, Chatterji *et al.* (2016) assessed the convergent validity of CSR ratings from KLD, ASSET4, Innovest, DJSI, Calver and FTSE4Good and found a lack of agreement across CSR ratings from these six raters. Chatterji *et al.* (2016) argued that the users of these ratings need to be cautious when interpreting firms' CSR performance based on these data. These authors also highlighted that raters of CSR performance should regularly evaluate their ratings to improve the measurement of CSR performance. Virtanen *et al.* (2013) documented that underdeveloped performance indicators can make it difficult to measure CSR performance management. Huang and Watson (2015) argued that careful measurement of the costs of and returns from CSR activities is necessary for conclusive analysis of the relationship between CSR and financial performance.<sup>9</sup> On the other hand, expenditure incurred on CSR activities can overcome validity issues as these data are auditable evidence of firms delivering their CSR commitment. Moreover, the actual CSR expenditure data are available in firms' annual reports as firms show this expenditure in their profit and loss account.

In relation to CSR activities that are measured as actual expenditure, Lys *et al.* (2015) used ASSET4's environmental and social scores as a proxy for CSR expenditure. These

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<sup>9</sup> Our study did not consider the return from CSR investment.

authors concluded that the association between CSR expenditure and future firm performance could be improved only by signalling the value of CSR expenditure. Using the Indian context, Bansal *et al.* (2017) document that the number of firms that spends for CSR activities have gradually increased following the implementation of the CSR Act in 2014. However, Pastakia (2014) document that very few Indian multinational companies have achieved the 2% target.

Two opposing views have emerged on the impact of CSR expenditure on firm value: (a) the stakeholder value maximisation view and (b) the shareholder expense view. The stakeholder value maximisation view suggests that firms invest in CSR expenditure to satisfy stakeholders who reciprocate by supporting the firm's operations leading to a higher firm valuation (Deng *et al.*, 2013, Gao *et al.*, 2016). This view is consistent with the stakeholder theory of the firm (Freeman, 2010) which is based on a nexus of notional contracts between different parties influencing, and influenced by, firms. Firms incurring greater levels of CSR expenditure are viewed as more satisfactorily fulfilling the nexus of contracts, and stakeholders reciprocate accordingly (Renneboog *et al.*, 2008, Battaglia *et al.*, 2015, Gao *et al.*, 2016). In contrast, the shareholder expense view considers that firms incur CSR expenditure to satisfy stakeholder groups other than shareholders at the expense of shareholders, and this contributes to a detrimental effect on firm value (Friedman, 1970). Both views have been supported by previous studies, with Baker and Roberts (2011) attributing the divergent approaches to corporate ethical identity, with the stakeholder value maximisation view considering CSR as a responsibility to reward other stakeholders, and the shareholder expense view considering CSR as a transfer of corporate wealth from shareholders to other stakeholders. Furthermore, firms' CSR practices can be affected by the quality of a firm's internal corporate governance mechanisms. For example, Ntim and Soobaroyen (2013) documented that firms with higher block ownership and institutional

ownership are more likely to have a lower level of CSR practices while firms with higher government ownership, larger boards, more diverse boards and more independent boards are more likely to have a higher level of CSR practices. Moreover, Ntim and Soobaroyen (2013) showed that corporate governance positively moderates the positive relationship between CSR and firm performance.

### *Theoretical Framework and Hypothesis Development*

The neo-liberal perspective carries divided views about CSR activities. One stream highlights that CSR activities are a distraction to the profit-making objectives of business organisations which are for the benefit of shareholders (Friedman, 1970, Henderson, 2001). Another stream points out that CSR activities are strategically beneficial to shareholders as they increase corporate reputation through visible corporate citizenship and help in long-term economic value creation (Amalric and Hauser, 2005). The second stream, aligned with the neo-Keynesian perspective, points out that an organisation's CSR activities become effective only when it considers a wider group of stakeholders with whom it interacts in its CSR activity design and implementation. The two divergent views in the neo-Keynesian perspective are: (1) where state intervention is considered necessary to direct private owners to do public good and (2) where private owners decide upon the appropriate course of action for doing public good with the state incentives made available to them. These state incentives and the upholding of market forces are what led Freeman (2010) to consider that stakeholders have an equitable interest in the organisation, and that the organisation's corporate citizenship is enhanced through the wider engagement of stakeholders. Laszlo *et al.* (2005) showed that this wider engagement of stakeholders is not a priority for many organisations. However, evidence has shown that socially responsible investments outperform the market, thus pointing to these investment strategies paying off in the capital market (Sparkes and Cowton, 2004).



Aligned with the first of these views, CSR activities are agency costs to the firm that meet managers' interests rather than shareholder interests (Galaskiewicz, 1997). The second view is that when organisational activities are seen as legitimate, stakeholders (including investors) are persuaded to interpret the CSR activities undertaken as consistent with organisational reality, building a relationship-based intangible asset (Godfrey, 2005) or contributing to profitability (Margolis and Elfenbein, 2008) for keeping the commitment by the firm. Further, the economics-based argument of CSR activities assert that these activities brings benefits to the firm by reducing transactions costs with stakeholders (Manchiraju and Rajgopal, 2017).

Several studies have examined the impact of environmental capital expenditure on the firm-specific outcome. For example, Clarkson et al (2004) examine the market valuation of environmental capital expenditures for firms operating in the pulp and paper industry and document that environmental capital expenditures are a value relevant information. However, they document that the results are applicable for low-polluting firms. Johnston (2005) investigate the economic consequences of both voluntary and regulatory environmental capital expenditures and find that regulatory environmental capital expenditures are negatively associated with the future abnormal earnings and market value. Further, Cho et al. (2011) find that firms having worst environmental performance are more likely to disclose their investment on environmental capital expenditures. While Clarkson *et al.* (2004), Johnston (2005) and Cho *et al.* (2011) focus on the environmental capital expenditure, we focus on CSR expenditure. Further, while the outcome of environmental expenditure is tangible, the outcome of CSR expenditure is intangible. For example, a firm records an asset from the investment from environmental capital expenditure, firms' expenditure on CSR activities generate goodwill which is an unrecorded intangible asset. Thus, we cannot generalise the findings documented for the environmental capital expenditures in case of CSR

expenditure. Although, several studies (Pastakia, 2014, Bansal *et al.*, 2017, Jain and Gopalan, 2017) show descriptive findings using Indian CSR data, those studies did not examine the capital market of CSR expenditure. Moreover, Manchiraju and Rajgopal (2017) show the negative effect of Indian CSR regulation, they did not examine the impact of CSR expenditure. We draw on the value-relevance research (Ohlson, 1995) to assess whether CSR expenditure provides information that investors use for firm valuation.

Given that Bangladesh is largely economically meager and overpopulated (UK Border Agency, 2012; Begum *et al.* 2012), the regulatory initiative taken by the Central Bank for the CSR expenditure certainly provides benefits to the economically vulnerable people as well as it will reduce the government's burden to some extent. However, whether banking firm's expenditure on CSR will increase or decrease the market value is an empirical question. Based on previous studies, we hypothesise that if investor stakeholders believe that CSR expenditure is relevant for firm valuation and is measured in a way that is sufficiently reliable, CSR expenditure will have significant market value implications. We state the relationship without a pre-determined direction as accounting studies elsewhere do not provide clear guidance.

*H1: Corporate social responsibility (CSR) expenditure is associated with the firm's market value.*

Furthermore, although some investors are willing to support CSR activities, they are presumably keen to also receive a return, with their preference being that this is sooner rather than later (Wang *et al.*, 2008). However, a manager may use excessive CSR expenditure in an opportunistic way to increase their own personal benefits from the firm with this increasing the firm value more quickly (McWilliams and Siegel, 2001). If managers opportunistically use excessive CSR expenditure, the relationship between CSR expenditure and firm value will be negative as these agency costs will not increase future earnings. If managers prudently

(i.e., beneficially) use CSR expenditure, the relationship between CSR expenditure and market value will show a positive relationship. Excessive increases in CSR expenditure will lead to an unfavourable response from investors as increases in agency costs are detrimental to firm value. Therefore, we expect the impact of CSR expenditure on the firm's market value to be an inverse U-shaped curvilinear relationship. In other words, the benefits of CSR expenditure will only be attained up to a certain point.

## RESEARCH DESIGN

### *Sample and Data*

Our sample consists of banking firms in Bangladesh for which disclosed CSR expenditure data were available for the period 2007–2014. We selected 2007 as the initial study year due to the availability of CSR expenditure data reported by the central bank of Bangladesh, while 2014 was the most recent year for which data were available. The banking industry in Bangladesh included 397 banking firm-year observations from 2007–2014.<sup>10</sup> However, 158 observations were omitted as these firm-year observations were not listed with the stock exchanges.<sup>11</sup> The non-availability of CSR expenditure data required the exclusion of an additional 41 firm-year observations. The final sample comprised 30 unique banking firms with 198 banking firm-year observations. According to the central bank's report, total CSR expenditure by the sample banking firms over the study period was US\$205.413 million which represented about 85.98% of the total banking industry CSR expenditure (Bangladesh Bank, 2015).<sup>12</sup> This provided reasonable confidence that the sample was representative of the

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<sup>10</sup> Currently, 56 banking firms are operating in Bangladesh, 30 of which are listed with the stock exchanges.

<sup>11</sup> Two stock exchanges operate in Bangladesh: the Dhaka Stock Exchange (DSE) and the Chittagong Stock Exchange (CSE).

<sup>12</sup> Unlisted banking firms were not included in our sample due to a lack of financial and share market data. However, the means of CSR expenditure by listed banking firms (mean=U.S.\$842.759 thousand) in our sample were compared, using a *t*-test, with the means of unlisted banking firms (mean=U.S.\$214.235 thousand) in the report issued by the central bank of Bangladesh. The unreported results showed that banking firms in the sample had significantly ( $p<0.000$ ) higher amounts of CSR expenditure.

banking industry in Bangladesh. The Compustat Global database provided accounting and share market data. We utilised annual reports to supplement missing accounting information or information not covered by this database.<sup>13</sup>

### *Empirical Models and Variable Definitions*

We have selected Ohlson (1995) residual income valuation model for empirically testing our hypotheses. The rationale for selecting the Ohlson (1995) model is that “the model provides a link from unrecorded intangibles assets to valuation” (Kohlbeck and Warfield, 2007). Further, the banking industry provides a context where intangible assets give rise to economic rents and these intangible assets receive conservative accounting treatment. For example, banking firm’s expenditure on CSR generates goodwill (unrecorded intangible assets) and these expenditures are expensed in the current period (conservative accounting). As our study focuses on the banking industry and the banking industry depends on the sale of intangible services, they need to engage in more CSR activities to appeal to their stakeholders’ imaginations and commitment compared to non-banking firms (Gautier and Pache, 2015). Thus, our study provides a good context to use the residual income valuation model and we select Ohlson (1995) model for our study. Although Holthausen and Watts (2001) criticised Ohlson (1995) model arguing that this model is appropriate only under restrictive circumstances and does not represent no theory, Barth *et al.* (2001) argue that value relevance research is adding great value to investors as financial statements are primarily prepared to provide useful information for equity investors and its usefulness can be further enhanced if an empirical model like value relevance model can prove how different types of accounting information is related to equity. Further, there is a long line of prior literature (reviewed by Beisland, 2009, Saha and Bose, 2017) that have used Ohlson (1995) model for their empirical

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<sup>13</sup>All financial data were converted into U.S. dollars using the exchange rate provided by the Institutional Brokers’ Estimate System (I/B/E/S) database.

testing which further justify our selection. Our hypothesis 1 (H1), which predicts that CSR expenditure is associated with the firm's market value, is tested by estimating the following regression model:

$$MVE_{i,t+\tau} = \beta_0 + \beta_1 BVE_{i,t} + \beta_2 EARN_{i,t} + \beta_3 CSREXP_{i,t} + \sum YEAR_{i,t} + \varepsilon_{i,t} \quad (1)$$

According to the model, CSR expenditure should be value-relevant if it provides information regarding future expected residual earnings. If CSR expenditure is positively associated with future expected residual earnings, then it should be positively associated with the market value of the firm. All variables are described in Appendix A. The independent variable of interest is *CSREXP* which denotes CSR expenditure in US\$ million. Corporate social responsibility (CSR) expenditure consists of both social and environmental expenditure incurred by the banks whereas social expenditure includes expenditure relating to education, health, humanitarian, sports, culture and others. Environmental expenditure includes expenditure for protecting the environment. We collect CSR expenditure data from the CSR reports published by the central bank of Bangladesh in its role as the regulator: this information is also publicly available. Therefore, these CSR expenditure data are credible. Moreover, the central bank of Bangladesh uses this reported CSR expenditure to measure each banking firm's performance. Consistent with Hypothesis 1 (H1) which predicts an association between CSR expenditure (*CSREXP*) and market value (*MVE*), we expect a significant coefficient for *CSREXP*. In Equation (1), *BVE* is measured as the book value of common equity in US\$ million at the end of the fiscal year, and *AE* is the firm's abnormal earnings in US\$ million defined as earnings available to common equity less an assumed cost of capital based on the CAPM times of the book value of common equity at the beginning of the period.<sup>14</sup> A positive coefficient is expected for both *BVE* and *AE*. In prior studies (e.g.,

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<sup>14</sup> The expected cost of capital is based on the Capital Asset Pricing Model (CAPM) is:  $k_e = R_f + \beta[(E(R_m) - R_f)]$ , where  $R_f$  is the risk-free rate of interest,  $(E(R_m) - R_f)$  is the market price of risk and  $\beta$  is estimated using daily share return data.

Campbell *et al.*, 2003, Barth and Clinch, 2009, Matsumura *et al.*, 2014), the unscaled market valuation model is found to generally perform better than the scaled version of the model. The coefficients from an unscaled model are also found to be intuitive and economically meaningful (Ziliak and McCloskey, 2004, Matsumura *et al.*, 2014). Therefore, for Equation (1), we use the unscaled model. However, we also use the scaled market valuation model as a sensitivity check of Equation (1). We also control for year effects in the regression models.

We apply the ordinary least squares (OLS) regression method to estimate all research models. In these regression models, we use robust standard errors clustered at the firm level to manage the heteroscedasticity and autocorrelation issues. Potential multicollinearity is diagnosed with variance inflation factor (VIF) statistics obtained by using collinearity diagnostics after running each regression.

## EMPIRICAL RESULTS

### *Descriptive Statistics and Correlations*

Table 1, Panel A reports the summary statistics for the variables used in this study. Table 1, Panel B shows the sample breakdown based on medians of CSR expenditure, namely, *HIGH\_CSREXP* and *LOW\_CSREXP*. The average (median) market value of the sample firms is US\$199.904 (US\$164.709) million, indicating that the sample firms are large. The mean (median) book value of equity (*BVE*) for the sample firms is US\$137.768 (US\$119.091) million, whereas the average (median) net income is US\$20.277 (US\$17.373) million. The average (median) abnormal earnings (*AE*) is US\$5.140 (US\$4.747) million. The mean of CSR expenditure (*CSREXP*) is US\$1,027.542 thousand, which is considerably larger than the median *CSREXP*, which is US\$446.961 thousand, indicating that some of the banking firms incurred large amounts of CSR expenditure.<sup>15</sup> The mean three-year ahead return on assets

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<sup>15</sup> In Table 1, we report CSR expenditure in thousand U.S.\$. However, we include CSR expenditure in million U.S.\$ in the regression model.

( $AVG\_ROA_{t+3}$ ) is 1.20% whereas the current year average ROA is also 1.20%. Furthermore, the average percentage of three-year ahead cash flow ( $AVG\_CFO_{t+3}$ ) to total assets is 3.60% whereas the average  $CFO$  is 3.20%.

[INSERT TABLE 1 ABOUT HERE]

Table 1, Panel B shows the mean and median tests of the regression models' variables. Higher ( $HIGH\_CSREXP$ ) and lower ( $LOW\_CSREXP$ ) CSR expenditure are computed based on yearly median industry expenditure amounts of CSR expenditure. The results indicate that banking firms incurring higher amounts of CSR expenditure are more likely to have higher market value of equity ( $MVE$ ); book value of equity ( $BVE$ ), earnings ( $EARNNS$ ) and abnormal earnings ( $AE$ ); as well as a higher average three-year ahead return on assets ( $AVG\_ROA_{t+3}$ ); current year return on assets ( $ROA$ ); average three-year ahead cash flow to total assets ( $AVG\_CFO_{t+3}$ ); current year cash flow to total assets ( $CFO$ ); and be larger in size ( $SIZE$ ).

Table 2 presents the correlations between the dependent and independent variables. As shown in the results, no high correlations occur between the independent variables except for between  $MVE$  and  $SIZE$  which had a significant positive correlation of 0.880. However, we did not use firm size ( $SIZE$ ) in the market valuation model. In addition, the correlation between  $MVE$  and  $EARNNS$  is 0.775. As the modified Ohlson (1995) model states that  $MVE$  is a function of  $BVE$  and  $EARNNS$ , it is likely that the correlation between these two variables is higher due to that functionality. In addition, Gujarati and Porter (2009) suggested that correlations between variables below 0.80 do not create any multicollinearity problems in regression models. Hence, the correlation between  $MVE$  and  $EARNNS$  is considered to have less impact on the overall result. The variance inflation factors (VIFs) are also examined in the models to further test for multicollinearity. This examination reveals no sign of potential multicollinearity, with the result confirmed by running collinearity tests after each regression. The mean VIF of the variables in the market valuation model is 2.93. The VIF is considered

high if it is greater than 10 (Greene, 2008). The lowest VIF for all variables in the value-relevance model is 1.19, and the highest VIF is 3.72, suggesting that multicollinearity problems are unlikely in our regression models.

*[INSERT TABLE 2 ABOUT HERE]*

### *Regression Analysis Results*

Hypothesis 1 (H1) predicts that CSR expenditure is associated with the firm's market value, that is, the firm's CSR expenditure is value-relevant information. That is, the coefficient of *CSREXP* is expected to be significant in Equation (1). The regression results of the valuation model (Equation 1) are reported in Table 3, Model (2), where the coefficient of CSR expenditure (*CSREXP*) is positive and statistically significant ( $\beta=5.567, p<0.05$ ). This result supports a positive association between CSR expenditure (*CSREXP*) and market value (*MVE*). This suggests that banking firms with a higher level of CSR expenditure have higher market value, supporting Hypothesis 1 (H1). This result has economic significance as, on average, every additional dollar of CSR expenditure leads to a US\$5.208 increase in market value. The mean CSR expenditure and market value across the pooled sample are US\$1.028 million and US\$199.904 million, respectively, as seen in Table 1, Panel A. Hence, every change of US\$1 in CSR expenditure maps into 2.86% in market value. This translates into a US\$3.8 million increase in market value moving from a firm in the first quartile of CSR expenditure to one in the third quartile of CSR expenditure.<sup>16</sup> Moreover, a significant and positive coefficient of *BVE* ( $p<0.01$ ) and *AE* ( $p<0.01$ ) is documented: this result supports the theoretical linkage between a firm's market value of equity (*MVE*), book value of equity (*BVE*) and abnormal earnings (*AE*), all of which have been emphasised by value-relevance

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<sup>16</sup> The third quartile of CSR expenditure is US\$859.254 thousand whereas the first quartile of CSR expenditure is US\$176.607 thousand. We compute US\$3.800 million as:  $((\$859.254-\$176.607)/1000)*5.567$ .



researchers (e.g., Clarkson *et al.*, 2004, Chapple *et al.*, 2011, Clarkson *et al.*, 2013, Venter *et al.*, 2014).

*[INSERT TABLE 3 ABOUT HERE]*

The explanatory power (R-squared or  $R^2$ ) of the model with CSR expenditure (*CSREXP*) in Table 3, Model (2) is 81%. To evaluate the incremental value relevance of CSR expenditure (*CSREXP*) to the explanatory power of the main regression model (Table 3, Model (2)), we follow Gujarati (2003) by repeating the main regression model (Model 2) in Table 3 after excluding the main research variable *CSREXP*. The results from this regression are reported in Table 3, Model (1), where the explanatory power of the regression model decreased to 80.40%. We then compute the *F*-statistic following Gujarati (2003), using the R-squared ( $R^2$ ) statistics reported for the regressions with and without *CSREXP* to test the null hypothesis that the inclusion of *CSREXP* as an explanatory variable in the valuation model does not affect the explanatory power ( $R^2$ ) of the main regression model. Gujarati's (2003) *F*-statistic, as reported in Table 3, is 6.19 and it is significant at 1%, indicating that *CSREXP* significantly increases the explanatory power ( $R^2$ ) of the main regression model. This suggests that the firm's CSR expenditure makes an incremental contribution to increasing its market value of equity. Overall, our results support the prediction that market value is associated with CSR expenditure.

The quadratic term of CSR expenditure is included in Equation (1) to assess the possibility of a curvilinear relationship with market value. Table 3, Model (3) shows the results. The coefficients on both the linear CSR expenditure term (*CSREXP*) and the quadratic term (*CSREXP*<sup>2</sup>) are significant. The positive coefficient on the linear term (*CSREXP*) and the negative coefficient on the quadratic term (*CSREXP*<sup>2</sup>) are consistent with the predicted curvilinear (inverse U-shaped) effect of CSR expenditure on market value. Furthermore, including the quadratic term of CSR expenditure in Equation (1) significantly

increased the  $R^2$  value as evidenced in Table 3, Model (3). Based on Model (3), it can be concluded that CSR expenditure is value-relevant within a certain limit.

Table 4 shows the association between  $MVE$  and  $CSREXP$  year by year from 2007–2014. The results indicate that  $CSREXP$  was value-relevant information in the sample period except in 2007. The reason for the lack of significance in 2007 might be that the market was not concerned about CSR expenditure before the regulatory directive was issued (i.e., the regulatory directive was issued in 2008). In this case, the regulatory directive issued by the central bank of Bangladesh to banking firms on the expenditure incurred for CSR activities has provided a degree of credibility to the market for those banking firms incurring higher CSR expenditure.

[INSERT TABLE 4 ABOUT HERE]

#### *Value Relevance of Normal and Abnormal CSR Expenditure*

In the main analysis, we use actual total CSR expenditure by a firm as a proxy for that firm's CSR expenditure. Recently, Lys *et al.* (2015) documented that deviation from the optimum level of CSR expenditure is positively associated with the firm's future financial performance. The authors interpreted this finding as the signalling value of CSR expenditure rather than the positive economic returns from this expenditure. Lys *et al.* (2015) also argued that prior studies provided an incomplete assessment of the association between CSR expenditure and financial performance as these studies ignored the view that firms expecting strong future performance may be involved in CSR expenditure. Following Lys *et al.* (2015), we create two components of CSR expenditure: "optimal" and "deviation". We label the "optimal" component as the expected (or normal) CSR expenditure ( $NormCSREXP$ ) and the "deviation" component as the unexpected (or abnormal) CSR expenditure ( $AbCSREXP$ ). The  $NormCSREXP$  is the fitted value from the first-stage regression model of the determinants of

CSR expenditure while the *AbCSREXP* is the residual from the same regression model. To estimate the normal (*NormCSREXP*) and abnormal (*AbCSREXP*) amounts of CSR expenditure, we first estimate the determinants of CSR expenditure (first-stage model). The signed residuals from the determinants model are used as a measure of the unexpected (or abnormal) component of CSR expenditure (*AbCSREXP*) in the second-stage model. The fitted value from the determinants model is used as a measure of the expected (or normal) component of CSR expenditure (*NormCSREXP*) in the second-stage model. Further, the abnormal CSR expenditure (*AbCSREXP*) is also considered as exogenous because it is not determined by the firm-specific factors (Gul *et al.*, 2011, Lys *et al.*, 2015). Therefore, it also addresses the endogeneity concern. As there is a dearth of studies that have examined the determinants of CSR expenditure, we develop the following regression model to identify the determinants of CSR expenditure based on the CSR disclosure literature:

$$\begin{aligned}
 LNCSREXP_{i,t} = & \beta_0 + \beta_1 SIZE_{i,t-1} + \beta_2 ROA_{i,t-1} + \beta_3 LEV_{i,t-1} + \beta_4 FAGE_{i,t-1} + \beta_5 VOL_{i,t-1} \\
 & + \beta_6 TOBINQ_{i,t-1} + \beta_7 ADINT_{i,t-1} + \beta_8 FCF_{i,t-1} + \beta_9 INSTOWN_{i,t-1} + \sum YEAR_{i,t} \\
 & + \varepsilon_{i,t}
 \end{aligned} \tag{2}$$

where *LNCSREXP* is the natural logarithm of total CSR expenditure. Larger firms are more visible and attract greater scrutiny by the public (Roberts, 1992, Herbohn *et al.*, 2014) and the government (Watts and Zimmerman, 1978). Such scrutiny by various groups in society creates pressure on larger firms for more social engagement; therefore, it may be expected that these firms would be involved in higher levels of CSR expenditure. Thus, firm size (*SIZE*) is included as a determinant of the level of CSR expenditure. In addition, better firm performance contributes to generating surplus resources that accelerate firms' motivation and capability to engage in more CSR activities. This, in turn, increases their CSR expenditure as asserted by the slack resources theory (Waddock and Graves, 1997). Thus, current year return on assets (*ROA*) is included in the model. Dhaliwal *et al.* (2014) argued that debt holders are particularly interested in CSR information to assess the firm's downside risk as CSR

information deals with the sustainability of a firm's operations and its continuing viability. Therefore, the model controls for leverage (*LEV*). Older firms are more likely to have been successful in sustainable development (Dhaliwal *et al.*, 2014) and, hence, have a greater incentive to invest in CSR expenditure. Thus, firm age (*FAGE*) is included. Share price volatility is included as firms facing a higher level of share price volatility in the prior year may invest in CSR activities in the current year (Alrazi *et al.*, 2016). Volatility (*VOL*) is measured using the daily share price.

Furthermore, firms in an expansionary period are more financially constrained and have fewer resources for CSR expenditure (Dhaliwal *et al.*, 2011). Thus, the model controls for firms' growth opportunities: the proxy for growth opportunities is *TOBINQ*. In their study, McWilliams and Siegel (2000) found that advertising is positively correlated with CSR performance. Thus, we include firms' advertising intensity (*ADINT*) in the model. In addition, firms need free cash flows to be able to incur CSR expenditure. Therefore, the model includes free cash flow (*FCF*). Firms with a lower level of social responsibility are viewed as a riskier investment by institutional investors as these firms may face significant levels of pressure from adverse regulatory actions, judicial decisions or consumer retaliation (Graves and Waddock, 1994). Therefore, firms with a higher level of institutional investors incur higher CSR expenditure. Institutional investors (*INSTOWN*) are thus included as one of the determinants. After running the first-stage model based on Equation (2), the residuals are used to create the unexpected (or abnormal) component of CSR expenditure (*AbCSREXP*) and the fitted values are used to create a measure of the expected (or normal) component of CSR expenditure (*NormCSREXP*). The second-stage model, Equation (1), uses these two variables, *AbCSREXP* and *NormCSREXP*, instead of the actual amount of CSR expenditure (*CSREXP*).

[INSERT TABLE 5 ABOUT HERE]

Table 5, Panels A and B present the regression results. We test the value relevance of *AbCSREXP* and *NormCSREXP* in separate models and have also combined them in one model, as shown in Table 5, Panel B. The results show that the coefficient of *AbCSREXP* is positive and significant at 5% in Model (1) and Model (3) of Table 3, Panel B. However, the coefficient of *NormCSREXP* is insignificant in Model (2) and Model (3) of Table 3, Panel B. These findings suggest that firms with a higher unexpected (or abnormal) component of CSR expenditure (*AbCSREXP*) play a positive role in market valuation as this incremental information is provided to the market. Our findings are consistent with the literature with prior studies showing that investors see this as a resolute commitment to CSR by firms to generate future earnings (Lys *et al.*, 2015).

#### SENSITIVITY TESTS AND ROBUSTNESS CHECKS

The above results suggest that banking firms with a higher level of CSR expenditure are associated with a higher market value. This section provides a series of sensitivity analyses designed to consider the robustness of the current study's main findings. Specifically, we focus on an alternative valuation model as well as on methodology to check the sensitivity of the main findings.

##### *Future Financial Performance Prediction*

To check the consistency of Hypothesis 1 (H1), we explore whether CSR expenditure plays a role in predicting expected future financial performance. Specifically, we follow Clarkson *et al.* (2013) by using average three-year ahead return on assets (*AVG\_ROA*) and cash flow from operations (*AVG\_CFO*) as proxies for expected future financial performance. The control variables are firm size (*SIZE*), current year return on assets (*ROA*) or current year cash flow from operations to total assets (*CFO*). The regression models are as follows:

$$AVG\_ROA_{i,t+3} = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LNCSREXP_{i,t} + \sum YEAR_{i,t} + \varepsilon_{i,t} \quad (4)$$

$$AVG\_CFO_{i,t+3} = \beta_0 + \beta_1 CFO_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LNCSREXP_{i,t} + \sum YEAR_{i,t} + \varepsilon_{i,t} \quad (5)$$

We use the natural logarithm of the total amount of CSR expenditure as a proxy for CSR expenditure in Equations (4) and (5). All other variables are described in Appendix A.

*[INSERT TABLE 6 ABOUT HERE]*

The results of these analyses are presented in Table 6. A positive coefficient for *LNCSREXP* is reported in both Equations (4) and (5). Although the association is weak, this finding supports the view that CSR expenditure provides incremental information that is useful for predicting future financial performance. The results shown in Table 6 indicate that CSR expenditure is associated with an increase in accounting value.

#### *Alternative Scaling of the Valuation Model*

We use the unscaled model in the baseline regression models. In this section, the scaled valuation model is discussed. Firstly, following Chapple *et al.* (2011) and Matsumura *et al.* (2014), both the dependent and independent variables are scaled in Equation (1) by the number of common shares outstanding. The results are presented in Table 7, Panel A. The coefficient of *CSREXP/PPS* ( $\beta=2.948, p<0.01$ ) is positive and statistically significant. This result corroborates the main findings. All other variables retain the same sign and significance level. Secondly, following Chapple *et al.* (2011), all dependent and independent variables are scaled by the book value of equity. Table 7, Panel B reports the regression results. We document that the coefficient of *CSREXP/BVE* ( $\beta=13.630, p<0.01$ ) is positive and statistically significant. This finding supports our main findings. All other variables retain the same sign and significance level. Regarding the non-linearity of CSR expenditure, the unreported results show that the documented results are qualitatively similar. Furthermore, we use the scaled valuation model to assess the value relevance of abnormal (*AbCSREXP*) and normal (*NormCSREXP*) CSR expenditure. These results are not reported in this paper for

reasons of brevity. However, the unreported results show that our findings are qualitatively similar, as in Table 5, Panel B.

[INSERT TABLE 7 ABOUT HERE]

### *Alternative Valuation Models*

In the baseline regression model, we use the modified Ohlson (1995) model for market valuation. In this section, we have discussed alternative valuation models for assessing the robustness of our findings. The benefits of using alternative valuation models are that it shows the sensitivity of the findings.<sup>17</sup> First, we use balance sheet valuation model following Barth and McNichols (1994). Specifically, we use the following unscaled market valuation model:

$$MVE_{i,t+\tau} = \beta_0 + \beta_1 ASSET_{i,t} + \beta_2 LIAB_{i,t} + \beta_3 CSREXP_{i,t} + \sum YEAR_{i,t} + \varepsilon_{i,t} \quad (6)$$

where *ASSET* and *LIAB* is the book value of the firm's total assets and liabilities at the end of the fiscal year. All other variables are defined in Table 1.

[INSERT TABLE 8 ABOUT HERE]

The results are presented in Panel A of Table 8. The results based on this alternative specification of the valuation model are consistent with those reported in Table 3. More specifically, we document the similar coefficient of *CSREXP* as shown in Table 3. The signs on coefficients of the other variables in the model are as expected. Further, we include the quadratic term of *CSREXP* in Equation (6) to assess the nonlinearity association of CSR expenditures with the market value. We find the coefficient of quadratic term of *CSREXP* is

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<sup>17</sup> We did not use event study because Clarkson (2012) argues that if the regulatory event affects all firms at the same point in time as opposed to a single firm, aggregating abnormal returns can be problematic due to correlated abnormal returns across the events. In our setting, we focus on only banking industry and the regulatory directive affects all firms operating in the banking industry. Further, event study assumes that the capital market is efficient and share prices reflect the information in the short term (Wagner *et al.*,2001). However, the capital market of Bangladesh is not informationally inefficient. Thus, it may take time to reflect the information into stock prices.

negative and statistically significant that corroborates our findings. Additionally, we use another alternative specification of the valuation model as suggested by Collins *et al.* (1997) for sensitivity purposes. The main difference between the Ohlson (1995) and Collins *et al.* (1997) models is that the latter one uses earning available to common shareholders instead of abnormal earnings. We do not report the results for brevity. However, the untabulated results show that we document the similar results as reported in Table 3.

Further, Willett (2015) argued in favour of using lognormal distribution of the variables in the market valuation model based on findings that the distributional properties of book values and earnings have a lognormal distribution irrespective of whether the data are pooled, time series or cross-sectional. Thus, the robustness of the study's market valuation research model is tested using an alternative model based on Willett (2015). Specifically, we use the following model:

$$LNMVE_{i,t+\tau} = \beta_0 + \beta_1 LNBVE_{i,t-1} + \beta_2 LN(EARNS_{i,t} - CSREXP_{i,t}) + \beta_3 LNCSREXP_{i,t} + \beta_3 LNOTHER_{i,t} + \sum YEAR_{i,t} + \varepsilon_{i,t} \quad (7)$$

where  $LNMVE$  is the natural logarithm of the market value of equity;  $LNBVE$  is the natural logarithm of the book value of equity;  $LNCSREXP$  is the natural logarithm of the CSR expenditure; and  $OTHER_{i,t} = BVE_{i,t} - [BVE_{i,t-1} + EARNS_{i,t}]$ .  $MVE$ ,  $BVE$ ,  $EARNS$  and  $CSREXP$  are as defined in Appendix A. We did not report the results in this paper for reasons of brevity. However, the unreported results showed that the coefficient of our variable of interest,  $LNCSREXP$ , is positive and statistically significant, suggesting that our findings are robust.

[INSERT TABLE 8 ABOUT HERE]



### *Heckman's (1979) Selection Model*

Although firms can obtain tax benefits on their CSR expenditure with the maximum amount of this expenditure fixed for tax purposes, in practical terms, no limit applies to the amount of expenditure that a firm should incur for these activities.<sup>18</sup> As a result, some firms use substantial amounts of resources for the increased perceived benefits of incurring this expenditure, whereas other firms use lower amounts of resources due to the lack of perceived benefits. This could be influenced by various unobservable factors. This situation may create a self-selection bias in the main regression results presented in Table 3. To mitigate potential self-selection bias, Heckman's (1979) two-stage procedure is used to re-estimate the regression model in Equation (1). In the first stage, the determinants of a firm's decision to incur higher CSR expenditure are modelled using a probit regression. In the second-stage, an OLS regression of market valuation on CSR expenditure is run while including an inverse Mills ratio (IMR) derived from the first-stage regression and other control variables. For the first stage, a variable is created for a firm's decision to incur higher CSR expenditure based on the actual CSR expenditure. A dummy variable of *HIGH\_CSREXP* is equal to 1 if a firm spends more than the industry median amount of CSR expenditure in any year, and otherwise 0. We also include the same control variables from Equation (2) in the first-stage model.

Lennox et al. (2012) emphasize that at least one exclusion restriction is needed in the first-stage model to successfully control the self-selection bias. This exclusion restriction will not have any direct impact on the dependent variable (here, *MVE*) in the second-stage model but it will have indirect impact through IMR generated from the first-stage model.<sup>19</sup> We use

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<sup>18</sup> In Bangladesh, firms can obtain 10% tax rebate on their total amount of CSR expenditure which must either be lower than 20% of their total income or Bangladeshi taka (BDT) 120 million. However, in 2014, the average amount of CSR expenditure by the sample firms of BDT 152.657 million and the maximum amount of CSR expenditure of BDT 1,813 million exceeded the threshold of BDT 120 million, indicating that firms' expenditure on CSR activities was not confined to a tax savings objective.

<sup>19</sup> Lennox et al. (2012) document that several prior accounting studies select ad hoc exclusion restrictions or no exclusion restrictions for the implementation of Heckman (1979) model. The authors argue that the Heckman's

the proportion of industry level CSR expenditure (*IND\_CSR\_EXP*) as an exclusion restriction in our first- stage model. The rationale for choosing this variable as an exclusion restriction is that industry-wide average CSR expenditure might influence a firm’s decision to invest in CSR expenditure. However, it is very unlikely that industry-wide average CSR expenditure will influence the market value because there are many firms in the industry (Jiraporn and Chintrakarn, 2013). Therefore, the variable *IND\_CSR\_EXP* serves as a proper exclusion restriction to perform Heckman's (1979) two-stage analysis. We do not report the first-stage regression results for brevity. However, the unreported results show that the coefficient on *IND\_CSR\_EXP* is 0.170 with a p-value of 0.001. The first-stage model has a pseudo- $R^2$  of 25.20% and a partial  $R^2$  for *IND\_CSR-EXP* of 0.391 which is significantly greater than 0, suggesting that *IND\_CSR\_EXP* is a reasonable exclusion restriction for our first-stage model (Larcker and Rusticus, 2010).<sup>20</sup> The inverse Mills ratio (IMR) is derived from the first-stage regression is then included in the second-stage regression to control for potential self-selection bias. We report the second-stage regression results in Panel B of Table 8. The results show that our findings here are qualitatively similar to the findings shown in Table 3 after controlling for selection bias.<sup>21</sup>

#### *Association of Social Expenditure and Environmental Expenditure with Market Value*

In our baseline analysis, we use the total amount of CSR expenditure as a proxy for CSR expenditure and the findings suggest that CSR expenditure is value-relevant information. However, CSR expenditure includes both social and environmental expenditure: it is therefore possible that the effect of different types of CSR expenditure on the market value

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(1979) selection model can be fragile and suffer from multicollinearity problems that may limit the reliability of the model. On the contrary, if the appropriate exclusion restrictions are selected, the Heckman’s (1979) selection model provides reliable inferences. However, it is hard to find out the appropriate exclusion restrictions.

<sup>20</sup> Partial  $R^2$  measures the strength of the exclusion restriction (Larcker and Rusticus, 2010).

<sup>21</sup> We find that the coefficient of IMR is statistically insignificant. We also compute the VIF of IMR for ensuring that the insignificant results for IMR is not caused by multicollinearity. The VIF for IMR is 1.59 that indicates multicollinearity is not a problem.

may differ. Recently, Moser and Martin (2012) theoretically argued that all types of CSR expenditure may not necessarily create value for organisations. Some specific types of CSR expenditure may increase firm value while other types of CSR expenditure may decrease firm value. In line with the argument by Moser and Martin (2012), we also examine whether there is any specific type of CSR expenditure that affects firm value. To examine this assertion, we split total CSR expenditure into two components: social expenditure (*SOCEXP*) and environmental expenditure (*ENVEXP*). Table 8 shows the association of social expenditure (*SOCEXP*) and environmental expenditure (*ENVEXP*) expenditure with market value (*MVE*).<sup>22</sup> The result indicates that both social (*SOCEXP*) and environmental (*ENVEXP*) expenditure are positively associated with market value. Panel C of Table 8 shows that the magnitude of the impact is higher for environmental expenditure ( $\beta=20.141, p<0.05$ ) compared to social expenditure ( $\beta=7.495, p<0.05$ ). We also document that the unreported coefficients of social (*SOCEXP*) and environmental (*ENVEXP*) expenditure differ significantly ( $\text{Chi}^2=6.35, p<0.01$ ). This finding implies that the capital market relates to environmental expenditure more than to social expenditure in determining the market value (*MVE*). This finding is not surprising given that investors are more concerned about environmental issues, considering these issues to have a more significant global impact. The findings support the view that banking firms are likely to stand out as better corporate citizens by taking greater responsibility for the environment, as most other industries in Bangladesh take less care of the environment (Belal *et al.*, 2015).

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<sup>22</sup> Banking firms report their total CSR expenditure to the central bank of Bangladesh by allocating their expenses to seven categories: education, health, humanitarian, sports, culture, environment and 'others'. However, all firms do not report their total amounts of CSR expenditure in their annual reports in accordance with the above categories. After receiving the information on total CSR expenditure, the central bank of Bangladesh compiles the information, releasing it to the market in an aggregated form based on the seven categories and the total expenditure for individual banks. We consider the expenditure relating to education, health, humanitarian, sports, culture and 'others' as social (*SOCIAL*) expenditure, and total expenditure relating to the environment as environmental (*ENVIRONMENT*) expenditure. The industry ratio for separating total CSR expenditure into the social and environmental categories has also been used which can present a little bias. However, our objective is to inform market participants that all information on total CSR expenditure is important to the market.

### *Propensity Score Matching Model*

Further, we use propensity score matching (PSM) procedure for addressing the observable heterogeneity (Tucker, 2010, Lennox *et al.*, 2012) that may affect our findings. PSM also addresses the causal effect because the method is used to adjust covariate distribution between the treatment and control groups (Li, 2013). The PSM procedure involves a logistic regression with a dummy dependent variable in the first-stage that is the same specification as the first-stage regression in the Heckman's (1979) two-stage model. We match without replacement a firm-year observation with *HIGH\_CSREXP* equal to 1 (a treatment observation) against another firm-year observation with *HIGH\_CSREXP* equal to 0 (a control observation) based on the predicted propensity score from the logistic regression. We use the caliper matching method and matched within a caliper of 3%. The caliper refers to the difference in the predicted probabilities between the treatment and the control observations (Dehejia and Wahba, 2002). After determining the matched observations, we run the regression using Equation (1) to eliminate any remaining bias after the propensity score matching. Panel C of Table 9 reports the results. It shows that the results were qualitatively similar. Further, we run doubly robust regression to test the robustness of the caliper matching PSM model. We did not report the results for brevity. However, we find qualitatively similar results. As we find qualitative similar results reported in Table 4, our findings are not affected by the causality.

*[INSERT TABLE 9 ABOUT HERE]*

### *Regulatory Directive of the Central Bank*

In 2008, the central bank of Bangladesh issued a regulatory directive to banking firms on their engagement in CSR activities. To assess the impact of the regulatory directive on CSR activities on the market value, we pooled the banking firm-year observations from 2008–

2014 and tested our main model. The results are consistent with the main findings. The unreported results show that the positive coefficient on the linear term of CSR expenditure (*CSREXP*) ( $\beta=16.426$ ,  $p<0.05$ ) and the negative coefficient on the quadratic term of CSR expenditure (*CSREXP*<sup>2</sup>) ( $\beta=-0.624$ ,  $p<0.10$ ) are consistent with the predicted inverse U-shaped curvilinear effect of CSR expenditure on market value. As previously noted, in 2007, CSR expenditure had no influence on a firm's market value. We find that the regulatory directive acted as a moderator and that it had a favourable influence on the impact of CSR expenditure on the firm's market value.

## CONCLUSIONS

We examine the value relevance of firms' CSR expenditure using the setting of an emerging economy, Bangladesh. We find that firms' increase in CSR expenditure is associated with an increase in market value. We also find that the increase in CSR expenditure is associated with a decrease in market value after a certain threshold level of CSR expenditure. In other words, the increase in market value is limited to a specific amount of CSR expenditure. More specifically, on average, every additional U.S.\$1 of CSR expenditure results in a 2.86% increase in market value. This translates into a U.S.\$3.8 million increase in market value moving from a firm in the first quartile of CSR expenditure to one in the third quartile of CSR expenditure.

We find evidence of an inverse U-shaped curvilinear association between CSR expenditure and market value. The stakeholder value maximisation view supports the notion that a firm's investment in a higher level of CSR expenditure increases its market value, whereas, in the shareholder expense view, the reverse occurs and is explained. The reason is that shareholders perceive that a firm's investment in a higher level of CSR expenditure is determined by managers to benefit themselves rather than the shareholders. Shareholders also perceive that a firm's investment in a higher level of CSR expenditure is beneficial to the

firm as it facilitates an increase in its market value which they can interpret as increasing future earnings. However, they also interpret excessive CSR expenditure as agency costs. The inverse U-shaped curvilinear relationship between CSR expenditure and market value requires two theoretical perspectives for an adequate explanation.

The sensitivity analysis showed the positive relationship of the average three-year ahead return on assets (*AVE\_ROA*) and cash flow from operations (*AVE\_CFO*) with CSR expenditure. Stakeholders, such as customers and staff members, can achieve efficiencies that contribute to a higher return on assets and cash flow from operations. In this respect, the stakeholder value maximisation view is used to explain the relationship between CSR expenditure and accounting value. The paradox of the ‘actual (accounting) and the perception (market) gap’ is that CSR expenditure is associated with an increase in a firm’s accounting value. However, after a threshold level of CSR expenditure, investors perceive that CSR expenditure decreases future earnings due to agency costs, with this established by the curvilinear inverse U-shaped association. Furthermore, our study documented that the unexpected (or abnormal) component of CSR expenditure is positively associated with a firm’s market value; however, no association was found between expected (or normal) CSR expenditure and market value. The abnormal component of CSR expenditure favourably influences investors’ perceptions as a resolute commitment by firms which investors interpret as bringing future earnings.

The results of this study show that managers should be informed about the overall effects of their engagement in CSR activities. Shareholders, analysts and investment managers should understand that a firm’s market value is affected by the amount of a firm’s CSR expenditure. The findings of this study also contribute to the larger debate on the reasons why firms should consider investing in CSR expenditure.

The report of the findings should be accompanied by several limitations. Firstly, we have focused only on firms from the banking industry. Secondly, although several determinants of CSR expenditure are included in the two-stage regression, important factors may have been missed that could simultaneously determine the level of CSR expenditure and the capital market effect of such expenditure. Therefore, the analysis may suffer from omitted variable bias. Thirdly, we used only stock exchange-listed banking firms, leading to a smaller sample size. Although the value-relevance concept is only applicable to listed firms, future research could investigate both listed and non-listed banking firms to examine the impact of CSR expenditure on their firm performance, as CSR expenditure is equally applicable to both types of banking firms. Although this study has shown that CSR expenditure is value-relevant information, future research could explore whether this information affects stakeholder sentiment based on the variations of corporate ethical identity. For example, corporate ethical identity can be established by governance structures with studies outside the banking industry having shown their influence on CSR (Ntim and Soobaroyen, 2013). [Moreover, the CSR expenditure data is now widely available in India for many industries and future research could utilize this rich data source to answer other important research questions.](#) Despite these limitations, the findings of this study add to CSR studies in the growing body of literature that have explored the benefits of firms' engagement in CSR expenditure by providing theoretical and empirical support for the beneficial role of CSR investment.

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