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How Does Corporate Social Responsibility Impact The Financial Inclusion? An Econometric Study on Banking Sector in Bangladesh

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Abstract
Corporate Social Responsibility(CSR) has become an established norm worldwide, which encourages government and private entities to share a small portion of their profit to suppress the inequalities of various forms such as social, economic, health, and environmental. Likewise, both corporate and financial entities in Bangladesh are encouraged to spend a certain share of their profits in various selected sectors which need financial assistance. However, unlike other business entities of our country Bank and Financial Institutions (BFIs) are particularly mandated by Bangladesh Bank (BB), the regulatory authority of banking sector, regarding spending CSR funds to seven selective fields. As a consequence, around 60% of the total CSR fund incurred by BFIs is allocated on fields like education, health, and climate risk. On the other hand, financial inclusion(FI) as a policy concern of recent development paradigm is deduced by the accessibilty, affordability and usage of BFIs mainly to the stakeholders of the economy to contribute to reducing inequility, ensuring financial stability, tranparency as well as the improving the financial resources allocation across the segments of the population. The extent of FI is measured with indices of the expansion of financial networks like the increase of the deposit and credit and fiancial service clients through the opening of additional bank branches, agent outlets, mobile fiancial services(MFs), online banking and so on.In recent years, agent banking becomes a significant and popular services introduced by Bangladeshi banks and played a significant role in incorporating a large number of under-banked people residing in remote areas under the umbrella of financial services. This study has looked at whether the CSR activities of BFIs have improved the FI of the country or not. The study has used the CSR data from the Sustainable Finance Department (SFD) of BB and the data of agent banks, branch number and profitability from the publication of concern departments of BB. To understand the dynamics between the CSR expenditure and the financial inclusion, a random-effect model has been used. The study findings suggest that the growth of agent banks along with the bank branches plays significant role in this dynamics and there is indeed a positive impact on financial inclusion due to CSR.

Keywords: *Corporate Social Responsibility (CSR), financial inclusion (FI), Bank branches, Agent outlets.*

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I. Introduction

Corporate Social responsibility (CSR) is globally appreciated management practice which governs businesses or corporations to contribute a portion of their profits to various social and environmental causes. CSR, once considered as the companies' volunteering activities has gradually become embedded into the mainstream apparatus for business or corporate institutions to maintain socio-economic contours (Pederson, 2010; De Chiara & Spena, 2011; Kochhar, 2014). In recent times, especially post 2008 global financial meltdown, this has become a global prominent channel for companies to build a trust-based business ecosystem as part of their sustainable management practice (Cho, Chung, & Young, 2019).Similarly, in Bangladesh, many businesses and corporations carry out CSR activities to establish themselves as environmentally and socially responsible company. The government also has adopted policy initiatives to encourage corporations to extend the part of profit towards the selective fields for socio economic developments. As per the government tax policy of Bangladesh, CSR expenses towards these selective sectors can have the opportunity of the tax exemption.

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[1] Bangladesh House Building Finance Corporation, a state-owned financial institution for housing sector in Bangladesh.

Though the government has not yet imposed comprehensive guidelines on corporations and business entities regarding CSR activities, Bangladesh Bank (BB), as a regulatory agency for banks and financial intuitions (BFIs), already has adopted precise guidelines regarding CSR for BFIs. This ground-breaking step was taken in 2008 by publishing a detailed directive titled 'Mainstreaming CSR in Banks and Financial Institutions in Bangladesh'. It was further updated with the directives specifying sector, amount of investment, expenditure and number of beneficiaries (Ullah, 2013) where 60% of total CSR fund was to be spent in the fields like education, health and climate risk under their social project and communal investment segment. Recently, in bid to address corona pandemic, new directive has enhanced the threshold of CSR expenditures of banking sectors for health from 20% to 60%. As per the half yearly report published by the concerned department of BB (Sustainable Finance Department) on June, 2021, currently 60 enlisted BFIs spend BDT 461.42 Crore in total where the expenses incurred alone in health sector is BDT 237.98 crore which is 51.58% of total.

These funds are primarily disbursed through agent banks, NGOs and microfinance institutions throughout the country. The prime beneficiaries of these funds are disadvantaged groups of people in rural areas, yet to come under the umbrella of financial inclusion. Moreover, to bring this group under financial service network, scheduled banks and FIs are mandated to include financial inclusion goals and targets under their CSR initiatives (Bangladesh bank, 2022) .Under this initiative banks have already initiated 'No frill Account' service for disadvantaged farmers, students and readymade garment workers.

In general, financial inclusion can be defined as the availability, affordability, and use of the formal financial system, which is mostly centered around banks, to all who actively participate in an economy (Park & Mecardo, 2016). Financial inclusion plays a prominent role in minimizing informal credit outlets and enhancing the distribution of financial resources across segments at the firm and, to some extent, individual levels (Bhattacharyya, Wright, & Rahman, 2019).It can also help to reduce income inequality by improving the earnings of the lowest 10% of the population, as well as ensure financial stability (Peter, et al., 2018). A well structured financial infrastructure hold a paramount importance in boosting financial inclusion as well as financial stability. Financial inclusion generally offers a multidimensional approach to enhance the lives of disadvantaged segments of the population by bringing them under financial coverage and hence it has become one of the most pertinent strategies in financial policy of the developing countries.

The financial inclusion can ensure a stabte economy which is very relavant in context of the country of huge population with increasing inequlity of economy. As much as the people will come into financial coverage, the formal economy will expand exploring the need of financial equitable distibution. The banking sector plays the leading role for the improvemant of financial inclusion through incorporation of several financial inclusive innovations like agent banking, online banking, mobile banking, so on. In Bangladesh, the agent banks formally started in the year 2013 has become a key contributor to include the visibly excluded population segment residing in remote areas into the financial serfvice coverage. Like other developing countries, financial inclusion is one of the most emhasized policy concerns in Bangladesh. Over the past decade, there have been significant reforms in country's financial sector to promote financial inclusion and to achieve financial stability. Bangladesh bank, the central bank of the country, has played a remarkable role in implementing these reforms. The approach of these reforms for financial inclusion is three dimentional, which covers facilitating policies for Banks and Financial Institutions, funding support for low cost refinancing schemes, and providing knowledge support to other regulatory and government bodies (Alliance for financial Inclusion, 2018). With these initiatives the finanial access and usage achieved remarkable growth which has been shown in the following table:

Items	**2014 (%)**	**2017(%)**
Account	31.00	**50.00**
Financial Institution Account	29.10	**41.00**
Mobile Money Account	2.7	**21.2**
Made or received digital payments	7.4	**34.1**
Saved at a financial instituion	7.4	**9.9**
Borrowed from a financial instituion of used a credit card	10.0	**9.2**

Table 1: Indicators on Financial Access and Usage (Population>15Y), Data taken from AFI report 2018.

The table not only shows the overarching impacts of the reforms on financial inclusion but also tells how well people have welcomed these initiatives .The table shows 50 percent adults have an account in their name. This growth is primarily attributed to the rapid expansion of agent banking which was introduced in 2013 and re-enhanced in 2017 with prudential guidelines for agent banking. (Alliance for financial Inclusion, 2018). Agent banks have now become one of the strong alternatives of traditional banking for rural customers and palyed a significant role in financial inclusion.

Bangladesh's economy still faces challanges regarding financial inclusion being the NGO-led poverty alleviation and micro-credit programs, Given this crux of economic reality, it has becomes an imperative in financial academics to find out the better means to spearhead financial inclusion as one of priority policy goals (Rashid, 2020). Against the above backdrop, the study aims at analyzing the CSR spending by BFIs, and its contribution towards the growth of personal account holdings via agent banks which have now expanded across the country.

II. Literature Review

In a normative sense, businesses or corporations are fashionably considered entities driven by the innate drive to accumulate profit. It was as early as the nineteenth century when the idea that business has societal obligations shored up in academia and practice (Smith, 2003). Underlying the form of paternalistic capitalism of the Victorian period, profit motive still was at the core rather than philanthropic acts towards the society (Caroll A. B., 2008; Harrison, 1996) . It was not until the early 1950s that the definitional construct of corporate social responsibility ushered in academic research and practical implications (Lee, 2008). In the lens of Praxis, it's hard to reach a universally agreed statement to define corporate social responsibility due to the lack of specification of crystal boundary and voluntary nature of implementation (Jankalova, 2016). Therefore the concept of CSR has been changing over time. Primitively, corporate social responsibilities were considered as the companies' volunteering activities in the name of donations. Formally, it were "*the obligations of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society*"-as defined by Bowen, the 'father of corporate social responsibility' (Bowen, 1953).

The historicity of CSR reveals that the way in which it was and is being understood and implemented is not completely aloof from the social expectations of corporate behavior (Aguinis & Glavas, 2012). In consideration of the latest technological advancements and associated business frameworks and strategies, CSR is expected to navigate through transactional path (instrumental theories, political theories, ethical theories) having a limited transformational evolution (Caroll A. , 2015).

Therefore, Werther & Chandler (2006) viewed CSR through the means and end nexus since, at one hand, it is an integral element of firm's strategy, and on the other hand, it provides a avenue of maintaining the legitimacy of actions taken by the firm for the larger society bringing stakeholder concerns to the foreground. Nevertheless, even though there emerges skepticism regarding the future with the advent of competing frameworks and concepts like corporate sustainability, corporate social performance, corporate citizenship, environmental corporate social responsibility, etc. institutionalization of CSR continues to expand at least for the sake of enabling financially inclusive economy (Heslin & Ochoa, 2008).

Financial inclusion has been a buzzword in recent years since all over the world, it has been firmly placed on the policy agendas of governments as a major contributor of development (Arun & Kamath, 2015; Midgley, 2005; Park, et al., 2018).Since around 1.7 billion adults globally are unbanked, with 56% of women, the importancs of finncial inclusion in the development pattern is quite pridictable (Demirgüç-Kunt, et al., 2017; Chaia, et al., 2010).

Atkinson & F., (2013), in a working paper for OECD, provide an elaborate definition of financial inclusion as "*the process of promoting affordable, timely, and adequate access to a wide range of regulated financial products and services and broadening their use by all segment of the society through implementation of tailored existing and innovative approaches including financial awareness, and education with a view to promoting financial well-being as well as economic and social inclusion*." While there is a growing body of literature skeptical about *'digital divide'*, technological advancement over the last two decades has propelled financial inclusion drive through mobile money banking, online payment platforms, agent banking, postal banking, etc., instead of traditional '*bricks and mortar*' banking across the globe (Hannig & S., 2010). However, financial inclusion cannot be seen narrowly in terms of digital payment mechanisms or '*banking the unbanked*' rather in a holistic approach of access to credit, savings, and insurance products targeted to otherwise excluded sects of the society (Rhyne, 2015). Apart from formal banks and financial institutions, regional and country-specific experience, especially Philippines, India, and Bangladesh in Asia, shows that microfinance, microcredit, and NGOs play a pivotal role in creating a financially inclusive economy (Masahiro & Prasad, 2010).

Philanthropic activities including donations to charitable organizations, religious organzations, poor people, etc have been interwoven into the pysche of local businesses in Bangladesh from time imemorial (Miyan, 2006). Transformation of such activities under the modern framework of CSR, however, is relatively new in Bangladeshi corporate culture (Mondol, 2009). CSR practices by corporate organizations in Bangladesh are centered around poverty alleviation, education, healthcare, women empowerment, patronizing cultural initiatives etc. and reporting disclosure is mostly voluntary in nature (Alam, Hoque, & Hosen, 2010). In the banking and financial sector mainstreaming of CSR activities has elevated under the tripple bottom-line agenda, '*profit, people, & planet*'. Bangladesh Bank has streamlined deeper engagement of country's financial sector with direct and indirect social responsibility driven financial inclusion strategy. CSR activities of almost all the banks in the country box-in community investment, environmental banking, financial inclusion, humanitarian relief and disaster response etc. where partcipation of private commercial banks (PCBs) are comparatively better than state commercial banks (SCBs) (Ullah, 2013; Masud, 2011). Based on a three dimensional financial inclusion index (FII) Faruk & Noman, (2013) found that regressed financial inclusion happened in Bangladesh where ranking of 35 districts out of 64 districts have shown negative changes during 2007-2010.

Plethora of empirical and thoeritical research have been conducted focusing on impact of CSR on financial performance (FP) indicators like return on assets (ROA), net profit margin (NPM), earnings per share (EPS), return of equity (ROE), return on sales (Zhou, et al., 2015; Cavaco & Crifo, 2014; Mwangi & Jerotich, 2013).

Corporate Social Responsibility (CSR) aids in the nation-building process by improving corporate governance, transparency, and accountability to bank stakeholders. Banks, on the other hand, prefer benefits from CSR fund through improved financial performance, cheaper operational costs, improved brand image and reputation, increased sales and customer loyalty, product safety, material recyclability, and increased use of renewable resources (Gautam R. and Sing A., 2010). In a study Kim et al. (2018) found the positive relationship between economic growth and FI where FI was measured taking the proxies such as the numbers of ATMs, bank branches, deposits accounts, and borrowers. In another similar study on the CSR-FI nexus, Haldar et al. (2016) commented that commercial banks had provided better FI throgh engaging in more CSR practices compared to state-owned banks.

Problem of the Study

According to the literature surveyed about the relationship between the CSR and F1 the exclusive study focusing the expenditure of the CSR activities of the banks and their expansion through the inclusion of the excluded sects of population is not sufficiently found. It is also observed that the lack of the in-depth and details study about the explanation of the impact of CSR activities on the financial inclusion in banking industry of Bangladesh remain inadequate. Therefore, this has become an imperative to explore the impact of the CSR upon the financial inclusive as an timely response to the need of time. This study is a humble endeavor to that extent with a view to bridging the gaps prevailing in literature in the context of the CSR impact analysis on the financial inclusion in Bangladesh Banking Sectors.

Research Question

Does CSR activities of Banks result into better financial inclusion in Bangladesh?

Hypothesis:

$\mathbf{H_{0:}}$ CSR activities of banks in Bangladesh have no impact upon F1.

$\mathbf{H_{1:}}$ CSR activities of Banks in Bangladesh have significant impacts upon F1.

Objective of the study

This Study attempts to find out the role of CSR upon continuous effort to financial Inclusion Through the expansion of the financial service coverage taking the data over time. This paper strives to identify the influences of CSR activities of the sample banks upon their growth of operational activities which in turn leads to FI in the country. These broad objectives have been established through the following specified manner of the research efforts.

1. To examine the impact of the total CSR expenditure of sample banks upon the growth of the number of bank branches.
2. To examine the relationship between the CSR activities and the growth of agent outlets of the sample banks.

III. Methodology

Data Collection: Bangladesh Bank (BB), the central bank of Bangladesh, being the sole regulatory agency of the banking sectors collects and aggregates data through its functional departments from the individual banks and financial institutions regularly periodically and publishes relevant reports using these data. All the data used in this study have been collected from the publications of these different functional departments of Bangladesh Bank as the unique and reliable sources of combined and verified data on banking sectors. The data on CSR and agent banking have been collected from the publication of Sustainable Finance Department and Financial Inclusion Department and the remaining data have been collected from the department of offsite supervision (DOS).The collected data of the banking sectors have been trimmed to14 private commercial banks data for this study, as those banks had been being operated the agent banking, one of major indicators of financial inclusion since the year of 2017, the time preference of the study.

Selection of variables: It has been derived from the literature surveyed for this current study that the CSR activities have the impact on the financial inclusion. The growth of branch of a bank is considered as one effective measurement tool for the extent of the financial coverage to include the people of a country in financial activities. Hence, the no of branch has been taken a dependent variable to find the improvement of the financial inclusion. To get the extent of financial inclusion it has been also suggested that the agent banking services is to be treated as another very effective financial services which are successful to include the excluded people in the banking channeling.

Therefore, number of branches (NOB) and number of agent-outlets (NOA) are two dependent variables used one after another as the proxies for financial inclusion. Then, total CSR expenses (TCE) of the banks are used as independent variable to explain the variances of number of branches and the number of agent outlets with a view to having the influence of CSR on financial inclusion. Along with the experimental independent variable TCE, the other control variables such as number of employees (NOE), income expenditure ratio (EIR), the age of banks (AOB) and the leverage ratio of Bank (LRB) have been used. These variables are hypothesized to be important for explaining the extent of Financial Inclusion in banking sectors of Bangladesh.

Estimation of Model: For analysis of this panel data, three major types of econometric techniques are frequently used-such as Pooled OLS, Fixed Effect Model (FEM) and Random Effect Model (REM).In the Pooled OLS analysis the heterogeneity is not considered. So, this model is not appropriate in this study as the banks are not practically identical in nature.

Between other two models, fixed model addresses the banks heterogeneity appropriately. But the large numbers of dummy variable usage in the fixed effect model may reduce the degrees of freedom and lack enough observations to do a meaningful statistical analysis. Tentative Multi-collinearity arising is another problem in FEM. To avoid these, the REM is used as favored model in this study expressing the ignorance (arising from lack of observation) through disturbance term.

For the testimony of adaptability of Model between the Fixed Effect Model and the Random Effect Model, the obtained results are compared conducting the **Hausman Test**.

Now, the random effect model which has been used for data analysis is described in the following with variables employed in our study.

$$\mathrm{NOB}_{it} = \beta_{1i} + \beta_2\mathrm{TCE}_{it} + \beta_3\mathrm{EIR}_{\ it} + \beta_4\mathrm{LRB}_{it} + \beta_5\mathrm{EIR}_{\ it} + \beta_6\mathrm{NOE}_{it} + \beta_6\mathrm{AOB}_{it} + \mathrm{U}_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.\ldots.\ldots\ldots (i)$$

i = 1,2,3,4…...; t = 1,2,3…………10 half years.

Here, β_{1i} is not fixed rather is assumed to be random variable with mean value of β_1 where

β_{1i} = β1 +εi……………………………………………………………………………..……………………………….. (ii)

β1i = Intercept value for individual bank,ε_i= Random error term with (0, σ2).

Substituting (ii) into (i) the following desired equation of the model will be formed

$$\mathrm{NOB}_{it} = \beta_1 + \varepsilon i + \beta_2\mathrm{TCE}_{it} + \beta_3\mathrm{EIR}_{\ it} + \beta_4\mathrm{LRB}_{it} + \beta_5\mathrm{EIR}_{\ it} + \beta_6\mathrm{NOE}_{it} + \beta_6\mathrm{AOB}_{it} + \mathrm{U}_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (iii)$$

$$\mathrm{NOB}_{it} = \mathrm{W}_{it} + \beta_2\mathrm{TCE}_{it} + \beta_3\mathrm{EIR}_{\ it} + \beta_4\mathrm{LRB}_{it} + \beta_5\mathrm{EIR}_{\ it} + \beta_6\mathrm{NOE}_{it} + \beta_6\mathrm{AOB}_{it} + \mathrm{U}_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..\ldots (iv)$$

WhereW_{it}= ε_i+$\mathrm{U}_{it}\varepsilon_i$ = cross- section random error,U_{it}= idiosyncratic random error.

Similarly,

$$\mathrm{NOA}_{it} = \mathrm{W}_{it} + \beta_2\mathrm{TCE}_{it} + \beta_3\mathrm{EIR}_{\ it} + \beta_4\mathrm{LRB}_{it} + \beta_5\mathrm{EIR}_{\ it} + \beta_6\mathrm{NOE}_{it} + \beta_6\mathrm{AOB}_{it} + \mathrm{U}_{it} \ldots.\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.\ldots.\ldots (v)$$

IV. Empirical Analysis

Descriptive statistics:

Table 2: The total expenditure of CSR was incurred annually by the banks of Bangladesh in last six years.

Year	2016	2017	2018	2019	2020	2021
CSR Expenditure (BDT in Crore)	496.75	743.99	904.63[2]	647.87	967.55	991.42
Growth in %	-	9.96%	4.87%	-8.27%	9.89%	0.36%
Total Number of Bank Branches	9677	9841	10006	10260	10473	10500
Growth in %	-	0.42%	0.42%	0.63%	0.51%	0.06%

[2]One of biggest bank in Bangladesh, the Islamic Bank Bangladesh Limited (IBBL) expensed a big amount in CSR activities in this year.

Total Number of Bank Agent outlets	2601	4,157	6932	11319	15908	18173
Growth in %	-	11.51%	12.51%	12.02%	8.43%	3.60%

The amount of CSR expenditure, the number of branches and agent-outlets of banking sector in Bangladesh have been shown in the following graph

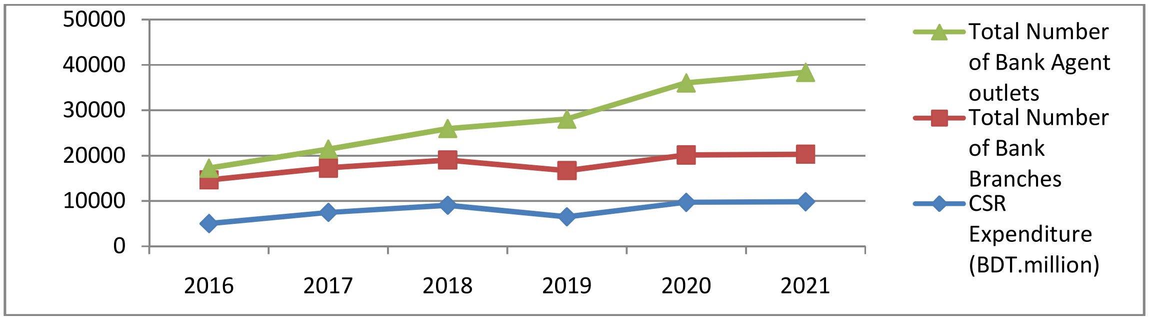

Figure1: The positive trend of CSR-expenditure of banks followed by the growth of the bank's branches and agent outlets which imply the growth in FI.

The experimental data is analyzed and computed with descriptive statistics in the following table based on the 140 observations.

Table 3: Descriptive statistics of the sample data have been shown in the following table.

	NOB	NOA	TCE	EIR	LRB	NOE	AOB
Mean	192.1214	678.2357	14.10536	0.531143	0.807929	3790.964	21.39286
Median	121.0000	180.5000	6.165000	0.520000	0.800000	2438.500	20.00000
Maximum	972.0000	5002.000	274.7800	0.820000	3.320000	18621.00	49.50000
Minimum	21.00000	0.000000	0.000000	0.300000	0.040000	0.000000	4.000000
Std. Dev.	224.9076	1174.952	29.37372	0.109821	0.247902	3985.794	11.55092
Skewness	2.744246	2.295673	5.932334	0.197115	7.265626	1.862091	0.627086
Kurtosis	9.564379	7.308126	47.86258	2.980294	77.62065	5.595348	2.951109
Jarque-Bera	427.0852	231.2357	12561.62	0.908868	33713.16	120.1979	9.189480
Probability	0.000000	0.000000	0.000000	0.634807	0.000000	0.000000	0.010105
Sum	26897.00	94953.00	1974.750	74.36000	113.1100	530735.0	2995.000
Sum Sq. Dev.	7031097.	1.92E+08	119931.3	1.676417	8.542299	2.21E+09	18545.89
Observations	140	140	140	140	140	140	140

The mean of independent variable TCE is 14.08 with the range 0-274.78 which means the total amount in BDT Crore has been expensed in the purpose of CSR by the Banks on average during the study period. The mean of branch and agent outlet numbers of those banks is 192 and 678 respectively. Banks under study is of leverage ratio0.81 which means the banks are somewhat leveraged in operation. The EIR ratio 0.53 which means the banks under study are performing good. The mean number of employees in those banks is 3837 with range of 18621-350.

Correlation Analysis:

Table 4: The correlation analysis of the variables under study is provided.

Correlation Probability	NOB	NOA	TCE	EIR	LRB	NOE	AOB
NOB	1.000000						
NOA	-0.018115	1.000000					
	0.8318	-----					
TCE	0.393857	0.315562	1.000000				
	0.0270	0.0105	-----				

EIR	0.446673	0.112351	0.152826	1.000000			
	0.0000	0.1863	0.0714	-----			
LRB	-0.061561	-0.154145	0.002628	-0.119461	1.000000		
	0.4700	0.0690	0.9754	0.1598	-----		
NOE	0.728430	0.128862	0.198274	0.414977	-0.000189	1.000000	
	0.0000	0.1292	0.0189	0.0000	0.9982	-----	
AOB	0.786647	0.054973	0.243705	0.509638	-0.131477	0.694561	1.000000
	0.0000	0.5189	0.0037	0.0000	0.1215	0.0000	-----

The correlation study shows that the relation between the independent variable TCE and the dependent variables NOB is positive but not so robust. The relation between TCE and the NOA is positively correlated with the coefficient 0.3157 and significant with the p value 0.105. Among other control variables AOB, EIR, NOE are positively related with NOB and NOA.

Regression Analysis: In this step, the data are regressed taking the variable the number of branches (NOB) and the number of agent outlets (NOA) as the dependent variable against the independent variable total CSR expenditure (TCE) and other control variables using the Random Effect Method (REM)of panel data analysis. The results of the data analysis are shown in the following tables.

Table 5: The impact of CSR (TCE) and others variables on FI in terms of number of branches (NOB) and number of Agent-outlets (NOA) of the banks has been provided as follows.

Variable		NOB			NOA	
	Coefficient	Std. Error	Prob.	Coefficient	Std. Error	Prob.
TCE	0.890766	0.117810	0.0000	6.038152	3.775907	0.0123
EIR	51.03866	33.19478	0.1267	889.7853	1063.922	0.4046
LRB	-17.00109	12.72128	0.1839	-765.2076	407.7282	0.0529
NOE	0.008092	0.001136	0.0000	0.071773	0.036420	0.0510
AOB	3.306932	0.447529	0.0000	-9.091718	14.34369	0.5273
C	17.54583	20.49456	0.3936	726.9191	656.8685	0.2706

To accept the result of the random effect model (REM) the Hausman Test has been carried out. The hypothesis of Hausman test:

H_0: FEM & REM estimators do not differ substantially.

H_1: FEM & REM estimators differ substantially.

Table 6: The result of the experiment has shown in the following table:

Correlated Random Effects - Hausman Test						
Test period random effects						
	NOB			NOA		
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	9.254966	5	0.6993	10.081960	5	0.729

The experiment shows that the random effects have been positively accepted in both cases. The Hausman test shows the chi distribution is not significant at 5% error and the null hypothesis is not possible to reject which was 'FEM & REM estimators do not differ substantially'. Therefore it is not possible to say that there is significant difference in the estimated co-efficient of the two models.

It seems, there is no substantial correlation between the error term and one or more regressors. Hence, the random effects model can be accepted in disfavor of the fixed effect model for the analysis of this panel data.

V. Result and discussion:

To find the influence of the CSR on financial inclusion in Bangladesh, it is needed to discuss the behavior of variables in the REM model conducted in the preceding section. At first, the less value of R^2 than that of DW removes the possibility of spurious regression. Therefore, the result found from this regression analysis is consistent.

Among the five explanatory variables, TCE is the experimental variable and remaining are the control variables. In first equation when the NOB is the dependent variable, the TCE impact is found highly significant with the significance value 000. Similarly, in the second equation the dependent variable NOA shows the significance value 0.0123 which is significant at 5% error level.

Now it can be said that the null hypothesis for this research $\mathbf{H_0}$ which was **the** CSR activities of banks in Bangladesh has no impact upon F1 has been rejected. This means as per the alternative hypothesis $\mathbf{H_1}$ that the CSR has the impacts on financial inclusion through those variables NOB And NOA specifically. As much as the number of branches and agent outlets increases the number of clients comes into the coverage of the banking channels which directly improves the financial inclusion. Among the control variables in first equation **NOE** and **AOB** have shown the significant positive impact on FI. It is consistent with the intuition that longer the operating periods find the more reach of the clients and the more staffs can reach more clients.

But in case of second equation when the dependent variable is NOA, the significant variables are **LRB** and NOE. Here the **LRB** is negatively related with the FI. It is also consistent as the less debt of a bank makes more impression to its clients and they come into its financial coverage more comfortably. The findings of the study were supported by several researches in the literature such as Ramzan.,M et al.(2021), Haldar et al. (2016); Ullah (2013), and Van der Werff et al. (2013), where it was vehemently reported that the higher social participation of a bank or financial intuition contributes more in financial inclusion through more clients' engagement and service coverage.

VI. Conclusion and Recommendation

The Banking sector as one of key role player in Bangladesh economy is increasing its coverage with the expansion of the capitalist formal economy in the country. Along with the most emerging actor for economic boosting up, the industry has been marked as the most effective practitioners of the activities of corporate social responsibilities. It has the perception that the bank's involvement in corporate philanthropic activities develops good image and scales up trustworthiness which result in better expansion of the business. The business expansion of the banking industry through increasing branches, ATM and MFs etc. improves the FI in the country. This study has examined this impact of the CSR on the increasing number of bank branches and the Agent outlets. The study has found that the CSR activities have the significant positive relation with the growth of number of branches and agent outlets which mean that banks CSR activities directly influence to expand its network for customers and this expansion improve the FI in the country. On the other hand, it has also found that from the relation of control variables with the expansion of the banking network that only the leverage ratio is negatively influence as the low debt is associated with more branches and agent outlets which indicates that the low debt burden of baking industry is good for business expansion as well as the FI. Among other control variables, the number of employees and the age of banks have the positive impact upon the financial inclusion which means that the older and larger banks are more capable and having more resources to reach more people which results into better FI. This study has the recommendation to the bank management to invest sufficient in CSR activities for their business development through making larger coverage. Policy makers in government and regulatory authority should develop supporting guidelines to encourage and incentivize the banks and financial institutions to engage more CSR activities for the development of baking industry which in turn improve FI for country's better and stable economy and the socio economic development especially for deprived communities of the country.

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