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DISCRETIONARY CHOICES OF COMMERCIAL BANKS IN BANGLADESH: AN EARNINGS MANAGEMENT APPROACH

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Niluthpaul Sarker[1], Anupam Das Gupta[2]
[1]Jagannath University, Department of Accounting & Information Systems, Dhaka 1100, Bangladesh.
niluthpaul@yahoo.com, ORCID: 0000-0002-9911-0706
[2]University of Chittagong, Department of Finance, Chittagong-4331, Bangladesh.
anupam@cu.ac.bd, ORCID: 0000-0002-0094-4541

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ABSTRACT

Purpose- The study aims to trace out the factors contributing to earnings management practices in the commercial banks of Bangladesh.
Methodology- The study used secondary data sources from the published audited annual reports of 32(Thirty-Two) commercial banks of Bangladesh from the year 2005-2018 of 425 observations. The study conducted preliminary diagnoses like normality, unit root, and Granger causality test to identify the data's nature and response. Moreover, the study performed the heteroscedasticity test, autocorrelation test, and fixed and random effect of the model to confirm the output's accuracy. Based on the above statistical diagnosis, the study has selected Robust Least Square (RLS) regression model to show the practice of discretionary choices in the banking sector of Bangladesh. Following Kanagaretnam et al.'s (2003), this study also derived discretionary and non-discretionary accruals from loan loss provisions.
Findings- This study considered several factors like bank size ($SIZE_{it}$), loan to deposit ratio (L/DEP_{it}), non-performing loan to previous year's total loan ratio ($NPLR_{it-1}$), changes in non-performing loan to current total loan ratio ($\Delta NPL/TL_{it}$), and changes in total asset to total loan ratio ($\Delta TA/TL_{it}$) to show the effects on banks' earnings management. It is found that $SIZE_{it}$, $NPLRit_{-1}$, $\Delta NPL/TL_{it}$ and $\Delta TA/TL_{it}$ have a positive and significant ($p<0.01$; $p<0.05$) effect on Bank's discretionary choice. However, L/DEP_{it} positively affects earnings management but is statistically insignificant.
Conclusion- Despite being a legal tool, earnings management is often involved with the controversy of being an unethical practice. However, there has been a lot of research on tracing earnings management in corporate firms based on discretionary and non-discretionary accruals. The study contributes to the existing literature and tries to explain the role of discretionary accruals in banks performance mostly in the submerged economy. Along with identifying significant variables, the study has tried to explain the implication of these findings suggesting some crucial steps that may help reduce the practice of earnings management as earnings management distorts the banks' financial position or any firm and misleads the investors.

Keywords: Earnings management, discretionary accruals, panel data, commercial banks, Bangladesh.
JEL Codes: C22, C23, G21

1. INTRODUCTION

Earnings management (EM) is concerned with the manipulation or alteration of recorded economic results of the company by the insiders to "mislead certain creditors" or "influence contractual results" [1]. Insiders may use their discretion to manipulate financial reporting to avoid adverse earnings realizations that may influence outsiders' decisions. According to Leuz, Nanda [2], the purpose of management exploiting profits is to boost their reputation in outsiders' eyes by supplying misleading financial records that conceal weaknesses in the firm's results.

Many researchers have conducted on EM in western countries' perspective. The study of Leuz, Nanda [2] found that economies with strict compliance have the lowest levels of earnings management, and Shen and Chih [3] also evaluated EM in forty-eight (48) countries and observed that managers exploit earnings in the majority of them.

Moreover, Yasuda, Okuda [4] found that banks' risks are negatively associated with their earnings management. It also demonstrates the outsiders' incorrectly reported earnings about Bank financial health. Furthermore, Adams, Hermalin [5] revealed that insiders benefit from handling these profits from tactful management. Again, Kanagaretnam, Lim [6]

demonstrated that auditors' experience mitigates banks' earnings management. Meisel [7] investigated earnings management in bank mergers and found evidence that it increased for banks, especially before the merger.

Abaoub, Homrani [8] divided earnings management studies for the banking sector into two categories: first, those looking at incentives concerning regulatory limits, and second, those looking at and evaluating earnings management calculations models. Eventually, earning management is addressed through Discretionary Accruals Management (DAM) and Real Activities Manipulation (RAM). DAM adheres to widely agreed-upon accounting principles and makes accounting decisions that aim to boost the firm's reputation [9]. Real Activities Manipulation (RAM) happens as administrators make decisions that affect the accounting performance by altering the timing or arrangement of transactions. Discretionary Accruals (DAs) are accounting accrual forms that focus on the first category. Bank executives can also deceive outsiders by manipulating financial data to satisfy shareholders [10]. There are many approaches for calculating discretionary accruals as an earnings management proxy, one of which uses the adapted Jones model, which Yasuda, Okuda [4] used with modifications appropriate for the banking industry. Furthermore, Meisel [7] used an updated Jones formula and a few other tweaks to measure banks' earnings management before the merger.

Earnings management has been referred to as opportunistic behavior if it successfully reaches the target number according to the company policy; moreover, if it can maximize the firm value, then EM is treated economically efficient [11]. If not affect the decision-making, earnings management would be good, but misinformed investors can sue the firm if the cost exceeds its benefits. Earnings management can be good by providing summarized information of the company to the shareholders, enhancing the firm's value; on the other hand, it can be bad due to poor governance, ignorance of shareholders, and moral hazards, thus diminishing the firm's value [11].

Therefore, there arise few research questions. These are: What are the factors that are responsible to influence the earnings management of the banking sector of Bangladesh? The discretionary choices of the management depend on several factors, i.e. internal and external. The study tried to show the effects of bank size, Outsider's influence, credit risk and assets structures on earnings management.

The study investigates the earnings management practices in Bangladesh's banking sector in the light of loan loss provision. The research theme is segregated into two (2) broad stages. The first section deals with discretionary and non-discretionary accruals, and the second section shows the factors affecting the banks' earnings management. There is limited scope for academic and institutional research in Bangladesh due to the scarcity of resources. However, economic development is not a random choice; rather, it will be effective in a homogeneous growth considering every aspect of the society. Therefore, the study's purpose is very straightforward and directly shows the effect of some bank-level variables on earnings management of the commercial banks in Bangladesh.

2. LITERATURE REVIEW

In EM literature, a distinct and important field of study differentiates "abnormal" from "normal" accruals by explicitly modelling the accrual method. Most of the research in accountings used "abnormal" accruals created by an accruals model to measure earnings efficiency. EM is most often debated for surrogate accruals abnormally to gain earning efficiency. The usual accruals are preordained to catch changes that represent actual results, while irregular accruals are unavoidable to apprehend distortions caused by the implementation of accounting rules or earnings management.

The expression "discretionary accruals" is also known as irregular accruals, seems to more synonymous with an intentional decision than a result of the measuring method or defect. These indicators are primarily appropriate for accounting analysts to explicitly locate issues with the accounting calculation scheme. The basic interpretation of accruals is that if the "normal" component is modelled correctly, the distinctive feature reflects a distortion of poor significance.

Discretionary accruals were the base point to distinguish earnings accounting. Mainly operational cash flow and gross accruals are the prime elements of earnings. Total accruals consist of discretionary accruals and non-discretionary accruals. The accrual portion of the accounting regulator levies in changing a firm's cash flows refers to the non-discretionary accruals. However, discretionary accruals are the portion of accruals that managers choose under the flexibility of accounting legislation in adjusting firms cash flows.

Healy [12] first implement discretionary accruals to address earning accounting. However, a doctrine explores discretionary accruals as a distortion of earnings by management, whereas non-discretionary accruals are presented as it is. Budgetary accruals also offer managers opportunities to exploit earnings due to their versatility [13].

Healy [12] further explained discretionary accruals as gross accruals by lagged total assets. It indicates zero probability of non-discretionary accruals. The author observed that motives of reward lead the administrators to use accruals. In 1986, DeAngelo believed non-discretionary accruals became random and used this peculiar behavior approach. The discretionary aspect of

accruals should be mirrored by the transition in overall accruals from the previous year to the current in detecting earnings control. It indicates non-discretionary accruals are expected to follow from year to year persistently.

DeAngelo [14] studied sixty-four (64) firms and observed managers' tendency to understate earnings before restructuring the organization through shares buyout.

Under Healy [12] and DeAngelo [14] strategy, both believed the non-discretionary accruals portion is constant and overall accruals can capture all earnings management operations. However, this statement is unlikely to be empirically descriptive. The effect of changes in economic circumstances from time to period should reflect the shift in the amount of non-discretionary accruals [15]. In comparison, Healy [12] and DeAngelo [14] opine that managers are intended to employ income adjusting tactics, either increasing or decreasing. However, they pinpointed all accruals as discretionary accruals and ignored non-discretionary accruals, theoretically incorrect due to misclassification.

Jones [16] proposed a linear regression model to address this constraint by acknowledging non-discretionary determinants. The author improvised revenue management using existing asset liabilities for non-discretionary accruals. Jones [16] advocated land, equipment and plant control for a non-discretionary ratio of depreciation expenditure. This is because working capital accruals are derived from revenue; however, depreciation accruals are based on land, factory, and related facilities. Later on, it is found that the calculation technique used by managers have exercised more unfavorable discretionary accruals to minimize revenue. Previous models validate a fair check for random samples that section accruals into discretionary and non-discretionary, limiting the power of testing. However, discretionary accrual has to be enormous compared to observed earnings [13]. Earnings were artificially distorted in the time-series model of Dechow [13]. When the mediated distortion reaches fifty (50%) percent of total assets, they reported that this method detects earnings management near the hundred (100%) mark. However, if the mediated manipulation represents five (5%) percent of total properties, this model can only detect less than thirty (30%) percent of the manipulation.

To enhance the power in measuring earning control, Dechow [13] modified Jones [16] model. Dechow [13] deducted adjustment in account receivables from the revenues change to prevent calculation errors where discretion is exercised to adjust non-cash revenues.

Peasnell, Pope [17] also advocate the cross-sectional Jones [16] Model to observe the capacity of earnings management. They claimed the rejection rates with the null of no earnings management could be as high as forty (40%) percent of the cases where earnings manipulation equals just two (2%) percent of total assets. The cross-sectional model's more significant influence in detecting EM may also result from model misspecification [18].

Moreover, implemented models are not signifying specific tests in the study firm-years witnessing severe financial results. Pragmatic research indicated earnings control actions dependent upon discretionary accruals would result in false inferences. Mainly two sources contribute to model misspecification. They are first omitting the operational cash flows. Managers tend to adjust earnings through shifting excessive operational cash flow to subsequent weak operating cash flows. In analysing operational cash flow portfolios, McNichols and Wilson [19] witnessed a negative association between systematic accounting discretion and operating cash flow. Nonetheless, certain companies could reduce income if the functional output is meagre. The fact is referred as 'taking a bath' technique. Association between EM and cash is evident in literature, and sometimes, cash flow adjustment is inevitable [20]. Dechow [13] observed a negative correlation between operating cash flow and discretionary accruals. The author also opined that budgetary accruals are contingent on cash flow activities. Therefore, the higher the operating cash flows, the lower the discretionary accruals choice of managers. Kasznik [21] incorporated the shift of operational cash flows into the Modified Jones [16] Model to monitor the impact of cash flow. Later, Dowla and Barua [22] approached a similar model to establish budgetary accruals in reaching earning benchmarks. Shuto [23] also detected earnings control consistent with executive pay. Secondly, the model can even misinterpret without adjusting for severe earnings results. Kasznik [21] evidenced an association between a firm's earnings success and discretionary accruals.

Thereby, low productive businesses should opt for earning management in revenue increasing and/or income decreasing. Kasznik [21] addressed the correlated omitted variables results from earnings outputs. The author endorsed a Performance Adjust Technique (PAT) to adjust expected budgetary accruals by eliminating the impact of a firm's earnings performance. Based on earnings efficiency, projected discretionary accruals are sorted by percentile under this method. Again, earning performance is addressed through return on assets (ROA). After that, each observation’s discretionary accruals subtract from the median of discretionary accruals of each percentile. This method address calculation errors and more accurate evidence on EM is obtained.

Kothari, Leone [24] added other changes, say incorporated return on assets as an external independent variable into the Modified Jones Model [13] to control a firm's output. Nevertheless, the performance-matched solution was adopted. They estimated performance-matched discretionary accruals by comparing the firm-year observation of the survey firm with the same sector and year's control firm. Therefore, the nearest ROA of the current year or prior year subtracted the monitoring firm's discretionary accruals from the sample firm's discretionary accruals. Even so, as the literature covering budgetary

accruals has progressed over the decades, the most effective methods have been derived from accounting for earnings control.

However, the darkest spot in earning management in this century is that it has found an association with massive accounting scandals. Agency theory illustrates individuals' rational behaviour who seek expected utility by ranking alternative actions against their desired outcomes. Finally, choose the best alternative action(s) to maximize the objective function. Therefore, the expected utility approach assumes rational behavior of individuals and explains their decision-making process also considers negative consequences of actions in the optimum decision-making process. It also narrates that beliefs are independent of tastes [25].

This postulates the involvement of factors that drive earnings management by impacting the firms' stock prices. Capital market movements do not affect earning management if the economic conditions of firms reveal from the stock prices. As stock prices do not mirror the firm value, thus earnings management become a relevant concern[11].

Third parties' involvement also observed an apparent relationship in earnings management. In decision making, accounting information is the relevant concern. Thus parties involved with the firm in investing and other decisions have prospective interest in business transactions directly or indirectly. They may also have concerns regarding the firm's operational structure. Thus, third parties involvement plays an active role in strategic management of firms and their resources to generate earnings [11].

The study summarized the different earnings management ambitions and classified them as black, white, or gray. White (beneficial) EM ensures transparency in reporting. However, debated practices are black and gray earnings management. The black (pernicious) denotes outright misrepresentation or intentional fraud, whereas the gray depicts the manipulation of statements within compliance boundaries.

Earnings management, managing earnings by selling the futile asset, acquiring new technology, and removing excess inventories sometimes require taking cash from the company's reserve to make earnings positive or to level the earnings [26]. Sometimes faster selling, altering product shipping schedule, slowing research and development cost facilitate earning management. Most often, earning management favours the major shareholders, ignoring the minor shareholders' interest.

Chinese commercial banks approach earning management through manipulation of loan loss system. To adjust profit smooth commercial banks manipulate the ready system for loan losses. Profit smooth plays an active role in stable stock price and steady profit that enhance investors' confidence. To project future earning capacity, managers set aside current surplus to extract upcoming loan losses. However, the management strategy could be a plan to manipulate the recent loan loss provisioning for future adjust to avoid significant fluctuation. Again avoiding the tax, commercial banks can present better income and changing reserve funds can smooth the income fluctuations [27].

Being a vital matchmaker of the economy, banks need to understand that discretionary factors are involved in reporting and profitability. Earnings management is not regarded as illegal as managers use accounting criteria and established regulations. However, analysts and agents should be concerned and understand it to pinpoint accurate risk perception. Bornemann, Kick [28] evidenced the practices of EM using a particularity system will not be applicable for all countries [29]

3. METHODOLOGY

Commercial banks' loan loss provision may be counted and drawn by earnings management. Smoothing a bank's profits, as previously mentioned, has been legalized due to the term Dynamic Provisioning, or forward planning provisioning, which was phased in under the BASEL III system in 2010 for the primary intention of helping banks to handle shocks during a recession. This study used a quantitative methodology, with secondary data gathered from audited annual reports of Bangladeshi commercial banks. It is an explanatory analysis that looks at the interaction between dependent and independent variables. The logical sequence of the study is explained below:

This study covers data from the year 2004 to 2018. The total number of observations made for the research is 457.

We address the earning management (EM) through discretionary loan loss provision. Definitions of other variables are:

Size = The natural logarithm of current assets of the banks.

L/DEP= Loan to deposit ratio.

Risk (NPLTL) =Non-performing loan to previous year's total loan ratio.

ΔNLP/TL = Change in non-performing loan to current total loan ratio

ΔTA/TL = Change in total asset to total loan ratio

3.1. Model Specification & Hypotheses

The study objectively works to show the discretionary choices of banks in the context of Bangladesh. The composition of discretionary accruals and non-discretionary accruals is generated from the choices of banks in the Loan-Loss Provision section. The analysis approach of Kanagaretnam, Lobo [30], of which the loan loss clause was divided into discretionary and non-discretionary portions—is being considered to empirically investigate the relationship between the discretionary component of the loan loss provision and earnings before taxes and provisions. We use the same calculation to determine the conditions that directly impact commercial banks' loan loss liability to smooth out their earnings. The determination of non-discretionary accruals allows obtaining the discretionary accruals. Therefore, we can develop the equation as:

LLP = DLLP + NLLP

Here, LLP = Loan Loss Provision

DLLP = Discretionary Accruals of LLP

NLLP = Non-discretionary Accruals of LLP

The model is homogeneous to the prior research conducted by Kim and Kross [31], Beaver and Engel [32], Beatty, Chamberlain [33]. The non-discretionary accruals can be estimated based on the equation (1):

$$LLP_{it} = \alpha_0 + \alpha_1 NPL_{it-1} + \alpha_2 \Delta NPL_{it} + \alpha_3 \Delta LOAN_{it} + \varepsilon_{it} \quad (1)$$

In the above equation, LLP_{it} indicates the Loan Loss Provision ratio during the period, NPL_{it-1} denotes the Non-Performing Loan ratio of the previous period, ΔNPL_{it} denotes changes of Non-Performing Loan ratio concerning the previous period. Finally, $\Delta LOAN_{it}$ denotes the change of loan and advances with the prior period deflated by beginning loans. Moreover, α_0 is the constant term; α_1 shows the positive effect of NPL_{it-1} to LLP_{it} as higher non-performing loan in the previous year bounds the management of the Bank to take more provision in the current year; α_2 also shows the positive effect of ΔNPL_{it} on LLP_{it} because the increment of non-performing loan also insists on taking more provision; finally, α_3 shows the positive effect of $\Delta LOAN_{it}$ on LLP_{it} as higher loan portfolio or whimsical approval of loan and advances allure to provide more provision in the year. In the regression equation, the study estimates the non-discretionary accruals (NLLP) by the effect of independent variables and the residual value responsible for finding the discretionary accruals (DLLP).

The next step is to find out the factors that affect the bank's earnings management or the management's discretionary choices. Before going to the final regression analysis, the study will check the preliminary diagnosis (Normality Check, Panel Unit Root Test, Ganger casualty Test, Heteroscedasticity Test, Serial-correlation Test, etc.) and will choose the best fitted approach to produce the final output. The study will also check the Fixed-Effect-Model (FEM) and Random-Effect-Model (REM) through Hausman Test. Based on the prior literature, the model of the study is given below:

$$EM_{i,t} = \alpha_0 + \alpha_1 SIZE_{i,t} + \alpha_2 L/DEP_{i,t} + \alpha_3 NPLTL_{i,t-1} + \alpha_4 \Delta NLP/TL_{i,t} + \alpha_5 \Delta TA/TL_{i,t} + \varepsilon_{i,t} \quad (2)$$

The variables description and explanation is presented in Definition of the Variable (Section 3.2).

Here, “i” represents number of cross-sections or banks and “t” denotes time period.

Relevant hypothesis of the study can be given as:

H_1: Ceteris paribus, Bank size has a positive effect on Discretionary choices of banks.

H_2: Higher bank liquidity increases the discretionary power of banks.

H_3: One-year lag of credit risk has a positive effect on the discretionary power of banks.

H_4: Incremental credit risk has a positive effect on the discretionary power of banks.

3.2. Preliminary Diagnosis

3.2.1. Normality Check

The study checked the normality of the variable Earnings Management (EM) through a histogram. The standard normal distribution has a bell-shaped density curve that justified the central limit theorem. The most common assumption in a normal distribution is that the violation of normality in the case where the observation is greater than 100 (N>100) is not a major issue. In reality, standard normal distribution should be followed in every case regardless of the sample sizes. In the study, we graphically examine and have found the graph shows the variable “EM” is normally distributed and satisfy the condition of linear regression model (The graph will be available on request to the authors).

3.2.2. Unit Root Test

The study conducted a panel unit root test based on statistical methods of Im, Pesaran and Shin (IPS) test (2003) that allows the cross-sectional dependence in the dataset. In most cases, data stationery is checked for the time dependence series whether the series has a stochastic trend or random walk with drift. The worst-case in unit root series is the inaccurate prediction of the outcome. However, several tests fit panel unit root tests like Levin, Lin and Chu test (2002), Im, Pesaran and Shin test (2003) and Fisher type unit root test, etc. In this study, we conducted Im, Pesaran and Shin (IPS) test to check the stationary of the dataset. The model showed the individual effect as given below:

$$\Delta Y_{i,t} = \alpha_i + \rho_i Y_{i,t-1} + \sum_{z=1}^{P_i} \beta_{i,z} \Delta Y_{i,t-z} + \varepsilon_{i,t} - - - -(3)$$

In this model, the hypothesis is developed in the assumption of cross-sectional independence, where,

Null hypothesis: H_0*:* $\rho_i = 0$*; i = 1,2,3,……N*

Alternative hypothesis: H_1*:* $\rho_i < 0$*; i = 1,2,3,……*N_1*; and*

ρ_i*=0 when i =* N_1*+1,……..N; with 0<*N_1*≤N.*

Furthermore, the model satisfied the normality of the data as per the central-limit-theorem. The number of cross-sections (N) is more than the time period (t) and combined with more observations.

Hypothesis relevant to the Im, Pesaran and Shin (IPS) Unit Root Test:

Null Hypothesis(H_0): All panels contain unit roots;

Alternative Hypothesis (Ha): At least one panel is stationary.

From the examination of Im, Pesaran and Shin (IPS) Unit Root test, we observe all variables are significant at 1% level of significance in both 'Individual Intercept' and 'Individual Intercept and Trend'. It means that the study rejects the null hypothesis, which assumes data are not stationary, rather accepting the alternative hypothesis that the panels are stationary in each case. In fact, Im, Pesaran and Shin (IPS) test is the modified version of Augmented Dicky Fuller test statistics and also follow the normal distribution.

3.2.3. Granger Causality Test

The study uses the Granger causality test for the panel data model. Though the Granger causality test is very common for time series data, it also used in panel data in a bivariate regression model. The bivariate regression form for the causality test is given below:

$$y_{i,t} = \alpha_0 + \alpha_{1,i} y_{i,t-1} + \cdots + \alpha_{k,i} y_{i,t-k} + \beta_{1,i} x_{i,t-1} + \cdots + \beta_{k,i} x_{i,t-k} + \in_{i,t--(4)}$$

$$x_{i,t} = \alpha_0 + \alpha_{1,i} x_{i,t-1} + \cdots + \alpha_{k,i} x_{i,t-k} + \beta_{1,i} y_{i,t-1} + \cdots + \beta_{k,i} y_{i,t-k} + \in_{i,t---(5)}$$

In the above model, "i" denotes the cross-sectional dimension and "t" denotes the time-series dimension of the panel. The study used the observations where $n > t$, meaning cross-sectional dependence panel observations. The Granger causality test shows that one data series causes one to forecast the others that best fit the regression model. The hypothesis is developed on:

Null Hypothesis: H_0*: X does not ganger causes to Y.*

Alternative Hypothesis: H_1*: X is ganger causes to Y.*

The study found that most of the variables are ganger causes to other variables except for few cases. The significance level for the model is based on the 5% level. The results of the casualty test will be available on request to the authors.

3.2.4. Heteroscedasticity Test

The study checked the heteroscedasticity problem of the data series. Heteroscedasticity shows the uneven scatter of the residuals or errors. The assumption of ordinary least squares (OLS) illustrates the constant variance of residuals (homoscedasticity) derived from a population. However, Heteroscedasticity releases that assumption and is treated as a problem that needs to be addressed in estimation. In this study, we checked the heteroscedasticity "white" test for the model based upon the assumption that:

H_0: The variances for the errors are equal (Homoscedastic).

H_1: The variances for the errors are not equal (Heteroscedastic).

The Heteroscedasticity (White) test results have shown that F-statistic value 7.276811 and Probability of F (20,403) is 0.000. Also, the Probability of Chi-Square (20) is 0.000, which reject the null hypothesis that the model is homoscedastic.

3.2.5. Serial Correlation Test

This study opts for Breusch–Godfrey serial correlation LM test. This LM test validates systems with lagged dependent variables and diagonal residual autocorrelation (Validated, 2016). The study also checked the serial correlation of the data set whether the time series data are dependent on its lagged variables over time. The serial correlation LM test assumes a null hypothesis with no serial correlation. The higher test statistics will reject the null hypothesis of no serial correlation. The hypothesis of the test is given below:

H_0: There is no serial correlation.

H_1: There exists a serial correlation

From the Breusch-Godfrey Serial Correlation LM Test, it is found that the probability of F-statistics is 0.0000 against the F-statistics value 24.91230. Also, the Chi-square is less than 0.05 or 5%, which allows the null hypothesis to reject and accept the alternative hypothesis. Therefore, the data set has the problem of serial correlation in the residuals.

4. ANALYSIS AND FINDINGS

4.1. Descriptive Statistics

The study showed the descriptive statistics of 457 observations in Table 1. It is found that the average value (mean), standard deviation, minimum and maximum values are presented below. The study showed that the minimum value of EM is zero (0) with an average value of 0.0326 where the standard deviation is 0.0371. It indicates that banks practice lower discretionary power in their judgement. In bank size, the degree of variability is 1.0137, where the average value is trends to reach the maximum value. The study considers both the small and large banks in terms of their assets to evaluate their earnings management effects.

Table 1: Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
EM	457	0.00	0.2161	0.0326	0.0371
$SIZE_{it}$	457	8.88	14	11.3324	1.0137
L/DEP_{it}	457	0.37	1.12	0.8233	0.1129
$NPLTL_{it-1}$	457	0.00	0.4459	0.0743	0.0844
$\Delta NPL/TL_{it}$	457	-0.2831	0.3925	0.0082	0.0501
$\Delta TA/TL_{it}$	457	-0.1810	1.3642	0.2230	0.1660

Loan and advances to deposit ratio range from minimum 0.00 to 0.2161 with an average value of 0.0326 and has a standard deviation of 0.0371. It is also found that the non-performing loan (NPLTL) rate has a mean value of 0.0743, which is significantly lower than the maximum value, which indicates a lower number of banks has high non-performing loan concentration. Furthermore, the variables $\Delta NPL/TL_{it}$, $\Delta TA/TL_{it}$ have lower mean values with lower deviations

4.2. Univariate Analysis

Univariate analysis is the simplest form of statistical analysis. It works in research for both inferential or descriptive statistics. To assess correlation among the variables used in the model Pearson correlation matrix is being constructed in Table 2. The correlation coefficient of a sample is calculated by the sample correlation coefficient, which is denoted as "r_{xy}". The formula for the Pearson sample correlation coefficient is given below:

$$r_{xy} = \frac{Covariance\ of\ xy}{SD\ of\ x\ \times Sd\ of\ y}$$

$$= \frac{\sum_{i=1}^{n}(x_i - \overline{x})(y_i - \bar{y})}{\sqrt{\sum_{i=1}^{n}(x_i - \bar{x})^2}\sqrt{\sum_{i=1}^{n}(y_i - \bar{y})^2}}$$

Where,

N is the sample size of x_i, y_i sample point

$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i$; same as $\bar{y}$.

It can be expressed alternatively,

$$r_{xy} = \frac{\sum x_i y_i - n\,\bar{x}\bar{y}}{\sqrt{(\sum x_i^2 - n\bar{x}^2)}\sqrt{(\sum y_i^2 - n\bar{y}^2)}}$$

Here, x_i, y_i, $\bar{x}, \bar{y}$, and n are explained in the above equation.

The study checked the Pearson correlation test for the dataset. It is found that EM_{it} is positively correlated with $SIZE_{it}$, $NPLTL_{it-1}$, and are significant at 1% level. However, L/DEP_{IT} and $\Delta TA/TL_{it}$ have a negative correlation with EM_{it} and also significant at 1% level. The correlation among the independent variables is less than 0.50, which shows the weak relation among them. Moreover, we didn't find any multicollinearity problem in the correlation matrix.

Table 2: Pearson Correlation Matrix

	EM	**$SIZE_{it}$**	**L/DEP_{it}**	**$NPLTL_{it-1}$**	**$\Delta NPL/TL_{it}$**	**$\Delta TLA/TTL_{it}$**
EM	1					
$SIZE_{it}$	.235**	1				
L/DEP_{it}	-.302**	-.100*	1			
$NPLTL_{it-1}$	.653**	.051	-.390**	1		
$\Delta NPL/Tl_{it}$	.193**	.076	-.033	-.297**	1	
$\Delta TA/TL_{it}$	-.311**	-.406**	.213**	-.379**	.063	1

** and * Correlation is significant at the 0.01 and 0.05 level (2-tailed), respectively

4.3. Multivariate Analysis

Table 3 represents the fitness of the model using these variables and considering the residuals as well to examine the result, and it can be said after judging the value of t-statistics that this model is suitable for producing an unbiased result. It is found that $SIZE_{it}$ has a positive effect on EM_{it}, which is significant at 5% level. L/DEP_{it} has a positive coefficient of 0.0127, which is not significant. $NPLTL_{it-1}$ has a positive coefficient of 0.3859, which is significant at 5% level. It means that the one-year lagged NPLTL increase the power of management discretionary choices to hide probable losses. This will create the information asymmetry problem and make the market unstable. Coefficient of $\Delta NPL/TL_{it}$ and $\Delta TA/TL_{it}$ show positive significant value 5% level. The pooled regression results are given below:

Table 3: Pooled Regression Model for Discretionary Accruals of the Commercial Banks in Bangladesh (2003-2016)

Source	**SS**	**df**	**MS**	**Observations**	**425**
Model	0.3675	5	0.0735	**F(5, 419)**	174.26
Residual	0.1767	419	0.0004	**Prob> F**	0.0000
Total	0.5443	424	0.0013	**Adj R-squared**	67.14%
Variables	**Coef**	**Std. Err.**	**P > I t I**	**[95% Conf. Interval]**	
$SIZE_{it}$	0.0070	0.0011	0.0000	0.0048	0.0093
L/DEP_{it}	0.0127	0.0102	0.2110	-0.0073	0.0327
$NPLTL_{it-1}$	0.3859	0.0160	0.0000	0.3544	0.4175
$\Delta NPL/TL_{it}$	0.3363	0.0222	0.0000	0.2927	0.3800
$\Delta TA/TL_{it}$	0.0165	0.0081	0.0420	0.0006	0.0324
CONS	-0.0932	0.0167	0.0000	-0.1261	-0.0603

The study showed the pooled regression result in Table 3. Table 4 and Table 5 are constructed to examine whether Fixed-Effect-Model (FEM) or Random-Effect-Model (REM) is a better fit for the panel data. The conclusion of choosing the appropriate model is based upon the results of the Hausman test where $p < .05$, which indicates that FEM is appropriate. $SIZE_{it}$ is found insignificant in fixed-effect but significant in random-effect test at 1% level. L/DEP_{it} is found significant at fixed-effect test at 1% significance level but not-significant in the random-effect test. $NPLTL_{it-1}$ is significant in both fixed-effect and random-effect test at 1% level and the same result for $\Delta NPL/Tl_{it}$. $\Delta TA/TL_{it}$ is found not-significant in both tests. Constants are significant in both tests at the 10% level at FEM test and at the 1% level at the REM test.

Table 4: Comparative Position of Discretionary Accruals in Fixed Effect and Random Effect

Variables	**Fixed-effect**		**Random-effect**	
$SIZE_{it}$	0.0013 (0.0013)		0.0043*** (0.0012)	
L/DEP_{it}	0.0316*** (0.0131)		0.0129 (0.0116)	
$NPLTL_{it-1}$	0.3041*** (0.0208)		0.3525*** (0.0181)	
$\Delta NPL/TI_{it}$	0.2926*** (0.0211)		0.3191*** (0.0207)	
$\Delta TA/TL_{it}$	0.0007 (0.0076)		0.0090 (0.0075)	
CONS	-0.0331* (0.0177)		-0.0573*** (0.0172)	
Observations = 425	**R-squared**		**R-squared**	
Groups = 32	within	0.4387	within	0.4306
	between	0.8496	Between	0.8723
	overall	0.6483	overall	0.6717
	F(5,388)	60.65	Wald chi2(7)	470.59
	Prob> F	0.0000	Prob> F	0.0000

*** Significant at 1% level, ** Significant at 5% level, * Significant at 10% level

Hauman test statistics derive a straightforward high level of analysis from the large sample distribution. This distribution simplifies when one of the estimators compared are efficient under the proposed null hypothesis of Jerry Hausman in 1978. The study opts for Hausman statistics for instruments validity. If Hausman's statistics of samples depict greater value from the critical value, then statistical evidence rejects the null hypothesis of the correct specification. The results of the Hausman test for the section of FEM or REM are given below:

Table 5: Hausman Test for Selection of FEM/REM

Variables	**Fixed effect (fe)**	**Random Effect (re)**	**Difference**	**Standard Error (SE)**
$SIZE_{it}$	0.0013	0.0043	-0.0030	0.0006
L/DEP_{it}	0.0316	0.0129	0.0187	0.0061
$NPLTL_{it-1}$	0.3041	0.3525	-0.0485	0.0103
$\Delta NPL/TI_{it}$	0.2926	0.3191	-0.0265	0.0043
$\Delta TA/TL_{it}$	0.0007	0.0090	-0.0083	0.0011

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2 (5) = (b-B)'[(V_b-V_B) ^ (-1)] (b-B)

= 46.88

Prob>chi2 = 0.0000

In the above results, it is found that theChi-square value is 46.88 with probability of 0.00 that rejects the null hypothesis "difference in coefficients not systematic "rather accept the alternative approach that will prefer Fixed-Effect-Model (FEM) for the final regression analysis.

Now, the study conducted to run the final regression to infer the results for generalization. The preliminary diagnosis and other ancillary test results dictate to use Robust Least Squares Regression Model (RLSRM) for the final output. The summary of the regression results is presented in Table 6. The coefficients of the variables $SIZE_{it}$ has positive significant (at 1% level) effect on $EM_{it,}$ which indicates that large banks (more assets) are intended to take more discretionary power in accruals. It also validates the presumption of the "Too big to fail" principle.

Table 6: Robust Least Squares regression model for Discretionary Accruals

Variables	Coef	Std. Err.	P > l t l	[95% Conf.	Interval]
$SIZE_{it}$	0.0070	0.0014	0.0000	0.0043	0.0098
L/DEP_{it}	0.0127	0.0131	0.3300	-0.0129	0.0384
$NPLTL_{it-1}$	0.3859	0.0373	0.0000	0.3126	0.4593
$\Delta NPL/TL_{it}$	0.3363	0.0534	0.0000	0.2314	0.4413
$\Delta TA/TL_{it}$	0.0165	0.0073	0.0240	0.0022	0.0308
CONS	-0.0932	0.0172	0.0000	-0.1271	-0.0593
Observations	425			F(5, 419)	34.53
R-squared	67.53%			Prob>F	0.0000

Therefore, it can be said that managers do consider total loan amount of the running year, the proportion of non-performing loan to total loan of last year, change in non-performing loan, change in total bank asset to total loan of current year before preparing loan loss proportion and increase in the amount of these variables increases earnings management (loan loss proportion). The loan to deposit ratio has positive earnings management but is not significant. However, $NPLTL_{it-1}$, $\Delta NPL/TL_{it}$, and $\Delta TLA/TL_{it}$ have positive and significant (at 5% level) effect of bank earnings management (EM_{it}). In fact, banks use more discretionary power to allure the depositors and creditors as they are the only intermediary agent in the economy.

5. CONCLUSIONS

The banking sector plays a vital role in the development process of Bangladesh. However, any distortion or misappropriation in financial decisions will hamper economic growth and demise the future growing business trends. Though earnings management has already been a sophisticated tool for manipulating financial records, any wrong result or interpretation may lead to further controversy and failure to tax research. Earnings management is a practice to fabricate the company's financial position in front of the shareholders and investors, and conventional banks use the loan loss proportion for the same purpose rather than only for minimizing risks. Non-performing loans and change in non-performing loans are directly related to the earnings management process as the name indicates that the research has brought size of assets of the Bank and change in loan assets in the spot light. Judging these factors, one can realize whether a large amount of loan-loss provision is required or just an effort to manage earnings.

5.1. Scope for Further Research

As further research opportunities, similar research can be conducted by dividing the banks based on ownership like – private commercial banks, state-owned banks, multinational commercial banks, specialized banks like – agricultural banks etc., and assessing the results and differences. Further research can be taken involving different industries operating in various stages of the industry cycle on this topic. As long as there is information asymmetry, the scope of earnings management will always mislead the investors.

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