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Does Non-bank Specific Factors Affect Profitability? Evidence from Non-bank Financial Institutions in Bangladesh

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Abstract
Non-bank Financial Institutions (NBFIs), as dream riders of the economic enhancement, contribute significant figures to the Gross Domestic Product (GDP) through healthy competitions with commercial banks to keep the wheel of the economy moving. NBFIs mobilize the funds of surplus spending units to the areas of deficit spending units to expedite the allocation of scarce resources. The study aimed at finding out the effects of non-bank specific factors on the profitability of NBFIs in Bangladesh. Secondary data constitutes 160-panel observations of 16 NBFIs among 34 NBFIs in Bangladesh from 2010 to 2019. Ordinary Least Square Estimation (OLSE) and Fixed Effects Model have been used as statistical tools to obtain desired results. The study results revealed that Total Liabilities to Shareholders' Equity (tlse), Total Liabilities to Total Assets (tlta), Loan, Leases & Advances to Total Assets (llata), Operating Cost to Total Assets (octa), and Non-bank Size (lgta) have significant effects on Return on Equity (ROE) measured as profitability indicator at 1% level of significance, and Term Deposits to Total Assets (tdta) has a significant effect on Return on Equity (ROE) at 5% level of significance. It has also been found that Operating Cost to Term Deposits (octd), Loan, Leases & Advances to Total Assets (llata), Term Deposits to Total Liabilities (tdtl), and Operating Cost to Total Income (octi) have no significant impacts on the profitability. Policymakers, analysts, and regulators can have useful insight into the dominant factors affecting NBFIs and take appropriate measures. The findings of the research might trigger new avenues for researchers and academicians.
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1. Introduction

Non-bank Financial Institutions, along with commercial banks, play promising roles in the economy by mobilizing funds to escalate societal responsibilities (Goldsmith, 1969; Vittas, 1997; and Shrestha, 2007). NBFIs have affiliations with commercial banks for doing mediating functions (Vadde, 2011). Financial inclusion accommodates the development of financial sectors by bringing the people under the umbrella of financial services. Financial intermediaries like banks, non-bank financial institutions, and insurance companies, collecting funds from surplus spending units and disbursing funds to the deficit spending units. Besides commercial banks, non-bank financial institutions have greater attributes on the economy of a country. Non-bank financial institutions play sophisticated roles in the economy through initiating products like project finance, credit guarantee, and rendering consultancy services (Khandoker et al., 2013). Those non-bank financial institutions have unique products and services with a comparatively compact portfolio by which they easily diversify their funds and get benefits (Gremi & Ballkoci, 2016). Non-bank Financial Institutions contribute significant enlightenment to the economy of the developed countries (Ofoeda, 2017; Gremi & Ballkoci, 2016; and Kumar & Suresh, 2017). NBFIs encourage banks' efficiency (Kondova & Bandyopadhyay, 2019), though financial crisis affects profitability (Dietrich & Wanzenried, 2011).

Non-bank Financial Institutions (NBFIs) are regulated under the formal sector of Bangladesh Bank in accordance with Financial Act 1993 (Khandoker et al., 2013), with rendering various financial products and services such as institutional loan, term loan, car loan, syndicated financing, bridge financing, corporate underwriting, consultancy, management of portfolios and so on (Imtiaz et al., 2019; and Kalam & Utsho, 2020). There are 34 non-bank financial institutions currently operating non-banking functions in Bangladesh (Bangladesh Bank, 2021). Mobilization of funds, participation in creating investments, facilitating growth in production sectors would be encouraged through the performances of non-bank financial institutions (Mozumder, 2015). Frequently, there existed some issues regarding non-bank financial institutions due to systematic risks (Ofoeda, 2017); as a result, general investors expect to invest in those areas where capital is efficiently optimized (Lalon & Hussain, 2017). Returns of any financial institution depend on their capability of resource optimizations, performance indications, and management of portfolios (Staikouras & Wood, 2004).

Empirical studies of those areas suggested that non-bank specific factors affected the profitability of NBFIs in different parts of the world (Ofoeda, 2017; and Gremi & Ballkoci, 2016). As a growing economy, Bangladesh experiences more remarkable positive outcomes through the assistance of Non-bank Financial Institutions (Kalam & Utsho, 2020; Khandoker et al., 2013; and Nath et al., 2015).

Non-bank Specific Factors may have direct and indirect impacts on the profitability of non-bank financial institutions. Empirical studies provided evidence that profitability determinants brought significant contributions to the profitability of NBFIs in Bangladesh (Rahman & Farah, 2012; Mazumder, 2015; Imtiaz et al., 2019; Kalam & Utsho, 2020; and Khandoker et al., 2013). On the other hand, Imtiaz et al. (2019) found no significant relationship between non-bank specific determinants (loan ratio, cost to income ratio and firm size) and profitability.

Prior studies uncovered that Total Liabilities to Shareholders' Equity, Total Liabilities to Total Assets, Loan, Leases & Advances to Total Assets, Operating Cost to Total Assets, Term Deposits to Total Assets, Logarithm of Total Assets had significant effects on profitability (Gremi & Ballkoci, 2016; Imtiaz et al., 2019; Staikouras & Wood, 2004; Mohanty & Krishnankutty, 2018; Kalam & Utsho, 2020; Ofoeda, 2017; Sufian & Chong, 2008; and Rahaman & Akhter, 2015). Those variables were dominant factors affecting NBFIs. Besides, Loans, Leases & Advances to Total Assets and Operating Cost to Operating Income have no significant impacts on profitability (Imtiaz et al., 2019).

Along with commercial banks, NBFIs try to move forward with mechanistic ideas, financial engineering, skilled human forces, but few areas are expected to need close supervision. NBFIs are still on track to determine their specific indicators, which have dominant impacts on profitability. Prior studies provided some of the dominant evidence regarding those indicators. To some extent, NBFIs in Bangladesh are in information asymmetry about the nature and extent of specific factors affecting their profitability. This study is expected to reveal those dominant factors.

Therefore, the prime objective of the study is to analyze the effects of non-bank specific factors on the profitability of Non-bank Financial Institutions (NBFIs) in Bangladesh. Other subsequent specific objectives are to analyze the performance indicators of NBFIs and to show how the financial ratios are used to determine profitability.

Extensive reviews of the literature uncovered few research gaps between prior studies and set hypotheses. Some studies tried to focus total liabilities to shareholders' equity, total liabilities to total assets, term deposits to total assets in relation to return on equity expressed as profitability. There was little evidence to work with operating cost to term deposits and term deposits to total liabilities to return on equity. This study endeavors to analyze the factors affecting the profitability of NBFIs, incorporating more variables and an extended period from 2010 to 2019.

2. Literature Review and Hypotheses Formation

2.1 Reviews of Related Studies

Prior literature on the effects of non-bank specific factors on profitability show mixed reaction among the researchers about the nature and extent of impact based on different explanatory variables. It is evident that study in this specific field is scant (Imtiaz et al., 2019; Gremi & Ballkoci, 2016; and Kalam & Utsho, 2020).

Kalam & Utsho (2020) discerned that total interest income to total asset, non-interest income to total asset, and total deposit to total asset have significant positive impacts on ROA; operating expense to total asset and total deposit to total asset have significant negative effects on ROE using the Fixed Effects Model, Random Effects Model, and Panel Corrected Standard Error (PCSE) Regression Method. Study experienced panel data analysis using the data of 19 NBFIs in Bangladesh from 2007 to 2017.

Imtiaz et al. (2019) examined that some specific determinants affected the profitability of NBFIs in Bangladesh. Return on Asset (ROA) was the profitability indicator expressed as the dependent variable, and firm size, capital strength, loan ratio, NPL ratio, deposit ratio, net interest margin, non-interest income margin, and costs to income ratio, were independent variables. The study period was five years, and panel data was structured based on 12 NBFIs. Running multiple regression, the researchers concluded that except firm size, loan ratio, NIIM, and cost to income ratio, there existed contributory influences of independent variables on the dependent variable.

Khondoker et al. (2012) executed a study identifying that total assets, total liabilities, total equity, term deposit, operating revenue, and operating expense had significant effects on the net profit of NBFIs evidence from Bangladesh. All variables were statistically significant at 1% level of significance. Judgmental sampling technique was used for collecting data of 22 NBFIs from the year 2008 to 2011. Using SPSS, z-test, and t-test, authors found significant results.

Rahman & Farah (2012) pursued a study based on the data from 2006 to 2008 of 30 NBFIs in Bangladesh suggested that some specific indicators of NBFIs had greater impacts on profitability. Both simple and multiple regression had been run for finding the results that long-term liability, interest income, and operating revenue

had significant influences on net profit measured as the dependent variable. On the other hand, current assets and financial expenses had no significant effects on profitability.

A sample of 6 NBFIs was taken to study whether determinants had significant effects on the profitability of Albanian NBFIs or not (Gremi & Ballkoci, 2016). Some specific statistical tools like economic program microfit 4, correlation analysis, and regression method were used to conclude that loan to total asset, loan provision to total loan, total liabilities to total assets, operating expense to operating income, and institution size significantly affected return on asset (Gremi & Ballkoci, 2016).

Mazumder (2015) stated that some stimulants had significant influences on the profitability of NBFIs in Bangladesh. The author analyzed the data of 6 NBFIs in Bangladesh from 2005 to 2014 following the judgmental sampling technique. They found that Total Assets, Total Liabilities, Total Equity, Term Deposit, Operating Revenue significantly influenced Net Profit from the findings done through simple correlation regression. On the other hand, operating expenses had no significant influences on profitability.

Lalon & Hussain (2017) explained the financial performances of NBFIs in Bangladesh by analyzing some specific financial ratios. Data of Lanka Bangla Finance Limited was collected for the period of 7 years from 2009 to 2015. The authors concluded that the current ratio and equity multiplier were increasing for the concerned non-bank financial institution.

Mohanty & Krishnankutty (2018) suggested that performance indicators stimulated return on assets of the banks in India. Panel data was formed based on 39 Indian banks for 17 years, starting from 1999 to 2015. It had been found that ROA was significantly explained by size, solvency ratio, loan to deposit ratio, expense ratio, productivity, CAR, GDP growth, and bank category.

A study was conducted based on cross-sectional data and time-series data for 1994 to 1998, focusing on the effects of specific determinants on profitability (Staikouras & Wood, 2004). Fixed Effects Model contributed that log asset, loan to asset ratio, overheads to asset ratio, gap to asset ratio, equity to asset ratio, loan loss to total loan ratio, interest rates, GDP growth rate, and gross personal income were significantly explaining return on assets of banks. Firm-specific market share, Herfindahl index, and GDP growth rate had no significant explanations for profitability (Staikouras & Wood, 2004).

Sufian & Chong (2008) identified that both the internal and external factors affect the profitability of banks in the Philippines. Data from 1990 to 2005 had been collected to run on Fixed Effects Model and Random Effects Model, explaining that internal factors were significantly affecting ROA at 1% level of significance. On the other hand, an only ratio of the stock market capitalization of external factors affected significantly at 1% level.

Rahman & Akhter (2015) empirically examined that bank-specific factors had driven the profitability of Islamic banks in Bangladesh. A sample of 8 Islamic banks was selected for five years data period of 2009 to 2013. Empirical findings suggested that size, equity, and deposit significantly affected return on assets. On the other hand, the researchers did not find a significant effect on ROA of loans and operating expenses.

2.2 Hypotheses Formation

Extracts from prior studies, problem statements, and objectives of the study pursued the researcher to form the following hypotheses:

H_1 = There is no significant effect of Total Liabilities to Shareholders' Equity on ROE.
H_2 = There is no significant effect of Total Liabilities to Total Assets on ROE.
H_3 = There is no significant effect of Loan, Leases & Advances to Total Assets on ROE
H_4 = There is no significant effect of Loan, Leases & Advances to Term Deposits on ROE.
H_5 = There is no significant effect of Operating Cost to Total Assets on ROE.
H_6 = There is no significant effect of Operating Cost to Operating Income on ROE.
H_7 = There is no significant effect of Operating Cost to Term Deposits on ROE.
H_8 = There is no significant effect of Term Deposits to Total Assets on ROE.
H_9 = There is no significant effect of Term Deposits to Total Liabilities on ROE.
H_{10} = There is no significant effect of Natural Logarithm of Total Assets on ROE.

3. Research Methodology

3.1 Sample and Data

The study is intended to find out the effects of non-bank specific factors on the performance of NBFIs in Bangladesh. In that pursuit, 16 NBFIs out of 34 NBFIs (Bangladesh Bank, 2021) were taken as samples based on the convenience sampling method. The study employed 160-panel observations collected from the annual reports of 16 NBFIs for ten years from 2010 to 2019. The data sources include available secondary data collected from annual reports of sampled NBFIs, scholarly journals and academic papers, consultation with experts, authentic newspapers, and other adjunct sources.

3.2 Variables Used

The researchers have identified some independent variables following a dependent variable based on literature reviews and hypotheses. Return on Equity has been taken as the dependent variable for the study. The explanatory variables are Total Liabilities to Shareholders' Equity (tlse), Total Liabilities to Total Assets (tlta), Loan, Leases & Advances to Total Assets (llata), Loan, Leases & Advances to Term Deposits (llatd), Operating Cost to Total Assets (octa), Operating Cost to Operating Income (octi), Operating Cost to Term Deposits (octd), Term Deposits to Total Assets (tdta), Term Deposits to Total Liabilities (tdtl), and Natural Logarithm of Total Assets (lgta).

Table1: List of Variables with Explanations

Variables	*Sl.*	*Remark*	*Elaboration*	*Indication*
Dependent	1	roe	Return on Equity: (Net Profit After Tax/Total Equity)	Profitability Indicator
Independent	1	tlse	Total Liabilities to Shareholders' Equity	Leverage Measurement
	2	tlta	Total Liabilities to Total Assets	
	3	llata	Loan, Leases & Advances to Total Assets	Investment Structure
	4	llatd	Loan, Leases & Advances to Term Deposits	
	5	octa	Operating Cost to Total Assets	Operational Efficiency
	6	octi	Operating Cost to Operating Income	
	7	octd	Operating Cost to Term Deposits	
	8	tdta	Term Deposits to Total Assets	Asset Structure
	9	tdtl	Term Deposits to Total Liabilities	Liability Structure
	10	lgta	Natural Logarithm of Total Assets	Size of NBFIs

3.3 Model Specification

The model specifies the relationship between the dependent variable and independent variables.

$roe_{it} = \alpha_0 + \beta_1 tlse_{it} + \beta_2 tlta_{it} + \beta_3 llata_{it} - \beta_4 llatd_{it} + \beta_5 octa_{it} + \beta_6 octi_{it} + \beta_7 octd_{it} + \beta_8 tdta_{it} + \beta_9 tdtl_{it} + \beta_{10} lgta_{it} + \mathcal{E}_{it}$

α_0 = *constant/intercept;* β = slope/coefficients; and $\mathcal{E}_{it}$ = error term.

3.4 Tools for Analysis

Statistical tool *STATA* has been employed to run regression through Ordinary Least Square Estimator (OLSE) and Fixed Effects Model. Hausman Test is prescribed to determine whether Fixed Effects Model or Random Effects Model are used to provide possible ways of generating solutions. Descriptive statistical tools were used to analyze mean, standard deviation, minimum and maximum values. In addition, correlation matrix and VIF test have also been performed here to check multicollinearity problems in the dataset.

4. Results and Discussions

4.1 Descriptive Statistics

Descriptive statistics employ mean, standard deviation, minimum, and maximum values of selected non-bank financial institutions for interpreting and marking the best alternative variable or variables.

Table 2: Results of Descriptive Statistics

Variables	*Obs.*	*Mean*	*Std. Dev.*	*Min*	*Max*
roe	160	0.093	0.374	-4.334	1.108
tlse	160	7.113	5.415	-2.773	58.97
tlta	160	0.843	0.109	0.497	1.564
llata	160	0.711	0.170	0.096	1.066
llatd	160	1.501	0.107	1.412	1.652
octa	160	0.012	0.007	0.003	0.032
octi	160	0.328	0.423	-2.195	3.430
octd	160	0.027	0.024	0.003	0.210
tdta	160	0.574	0.036	0.544	0.625
tdtl	160	0.673	0.049	0.632	0.743
lgta	160	4.297	0.397	3.419	5.233

The mean Return on Equity of selected non-bank financial institutions is 9.30%; Total Liabilities to Shareholders' Equity is 7.11, indicating an insignificant result because the lower the value, the greater the performance. The ratio of Loan, Leases & advances to Term Deposits is 1.50, stating that Term Deposits is used 1.50 times for sanctioning loans, leases & advances. The ratio of Operating Cost to Operating Income is 0.328 or 32.8%, meaning that operating income is good in terms of operating cost for the non-bank financial institution in

Bangladesh. The value of asset size is 4.297, with a moderate standard deviation. The only standard deviation for Total Liabilities to Shareholders' Equity is higher (5.415) among the ratios, which provide a conclusion that the variations from mean to other values for certain non-bank financial institutions are covered here. The standard error is in the maximum range (58.97) for some non-bank financial institutions.

4.2 Correlation Matrix

The numerical values in the following table measure the relationship between the independent and dependent variables.

Table 3: Scenario of Correlation Matrix

	roe	*tlse*	*tlta*	*llata*	*llatd*	*octa*	*octi*	*octd*	*tdta*	*tdtl*	*lgta*
roe	1.000										
tlse	-0.714	1.000									
tlta	0.042	0.464	1.000								
llata	-0.066	0.315	0.471	1.000							
llatd	-0.113	-0.121	-0.239	0.166	1.000						
octa	0.023	-0.140	-0.074	0.257	-0.121	1.000					
octi	0.118	-0.117	0.020	0.146	-0.016	0.345	1.000				
octd	0.004	-0.252	-0.351	0.090	0.294	0.629	0.192	1.000			
tdta	0.119	0.283	0.404	0.032	-0.672	0.051	-0.037	-0.253	1.000		
tdtl	0.099	0.072	0.010	-0.276	-0.702	0.054	-0.055	-0.232	0.798	1.000	
lgta	0.073	0.242	0.304	-0.278	-0.464	-0.191	-0.096	-0.460	0.562	0.505	1.000

Study results uncover no multicollinearity problems according to the theory of Kennedy, explaining that when the correlation between variables does not exceed 0.80 or 80%, there are no options for multicollinearity issues (Kennedy, 2008). Here, observations reveal that there are no multicollinearity problems among the variables, referring to dependent variables or dependent and independent variables.

4.3 VIF Test

Another way of testing multicollinearity is to run Variance Inflation Factor (VIF) by using *STATA* concerning that if the values of VIF are less than 10, it will be perceived that there is no multicollinearity issue among the variables (Hair et al., 2006). The processed values of the VIF test, as per table 4, are less than 10, referring that there is no such type of issue and the study proceeds as per the plan.

Table 4: VIF Test Results

Variables	***VIF***	***1/VIF***
tdta	5.61	0.178
tdtl	5.40	0.185
octd	2.74	0.366
tlta	2.67	0.375
llatd	2.60	0.385
octa	2.55	0.392
llata	2.30	0.435
lgta	2.16	0.462
tlse	1.42	0.702
octi	1.16	0.860
Mean VIF	2.86	

4.4 Ordinary Least Square Estimation

Ordinary Least Square Estimation (OLSE) is employed to estimate linear regression where the dependent variable is explained by independent variables.

Table 4: Test of ANOVA for Model Significance

Source	***SS***	***df***	***MS***	*Number of Obs.*	*160*
Model	17.0347865	10	1.70347865	F (10, 149)	48.27
Residual	5.25865511	149	.035292987	Prob> F	0.0000
Total	22.2934416	159	.140210325	R-squared	0.7641
				Adj R-squared	0.7483
				Root MSE	0.18786

The calculated value of F is 48.27, and the table value or critical value of F (10, 149) is 2.442 at 1% level of

significance, 1.895 at 5% level of significance, and 1.642 at 10% level of significance. It is proved that the calculated value is more than the critical values in all respective levels of significance, indicating that the model is fit for further test. R-squared of 0.7641 determines that the dependent variable, Return on Equity (ROE), is explained by 76.41% of independent variables. Adjusted R-squared of 0.7483 is slightly less than that of R-squared, explaining that there are fewer unwanted independent variables used in this model.

The following table shows the coefficients and p-values to determine the relationship and acceptance & rejection of each independent variable against the dependent variable.

Table 5: Results of Regression Analysis for Testing Significances

Variables	*β*	*SE*	*t*	*p*	*[95% CI]*
tlse	-0.070	0.003	-21.36	**0.000*****	[-0.077-0.064]
tlta	0.970	0.224	4.33	**0.000*****	[0.528 1.413]
llata	0.416	0.133	3.13	**0.002*****	[0.1530.678]
llatd	-0.180	0.224	-0.80	0.423	[-0.624 0.263]
octa	-10.554	3.453	-3.06	**0.003*****	[-17.377-3.731]
octi	0.034	0.038	0.89	0.375	[-0.0410.109]
octd	1.260	1.035	1.22	0.225	[-0.7853.305]
tdta	2.426	0.978	2.48	**0.014****	[0.494 4.358]
tdtl	-0.391	0.712	-0.55	0.584	[-1.797 1.016]
lgta	0.150	0.055	2.72	**0.007*****	[0.0410.260]
cons	-1.940	0.642	-3.02	0.003	[-3.208-0.672]

Notes: ***= P<0.01, **= 0.05>P≥0.01, *= 0.10>P

The linear regression model has been formed as:

roe = -1.940 - 0.070 tlse + 0.970 tlta + 0.416 llata - 0.180 llatd - 10.554 octa + 0.034 octi + 1.260 octd + 2.426 tdta - 0.391 tdtl + 0.150 lgta

Study results depict that each independent variable positively and/or negatively affects or do not affect the ROE by their respective coefficients. Constant or intercept remains the same with the negative value that reduces or inversely affects the ROE.

It has been found that Total Liabilities to Shareholders' Equity (tlse), Total Liabilities to Total Assets (tlta), Loan, Leases & Advances to Total Assets (llata), Operating Cost to Total Assets (octa), and Logarithm of Total Assets (lgta) have significant effects on Return on Equity (ROE) at 1% level of significance implies rejection of null hypotheses namely H_1, H_2, H_3, H_5, H_{10}. In addition, Term Deposits to Total Assets (tdta) has a significant impact on profitability at a significant level of 5%, implies the null hypothesis (H_8) has been rejected. Only four independent variables denoting Loan, Leases & Advances to Total Assets (llatd), Operating Cost to Operating Income (octi), Operating Cost to Term Deposits (octd), and Term Deposits to Total Liabilities (tdtl) have no significant effects on dependent variable implies we failed to reject the hypotheses H_4, H_6, H_7, and H_9.

In relation to authors' findings, it has also been found that Total Liabilities to Shareholders' Equity, Total Liabilities to Total Assets, Loan, Leases & Advances to Total Assets, Operating Cost to Total Assets, Term Deposits to Total Assets, Logarithm of Total Assets had significant effects on profitability (Gremi & Ballkoci, 2016; Imtiaz et al., 2019; Staikouras & Wood, 2004; Mohanty & Krishnankutty, 2018; Kalam & Utsho, 2020; Ofoeda, 2017; Sufian & Chong, 2008; and Rahaman & Akhter, 2015). Loan, Leases & Advances to Total Assets and Operating Cost to Operating Income have no significant impacts on profitability (Imtiaz et al., 2019).

4.5 Hausman Test

'Hausman Test' is structured for choosing the best alternative option between 'Fixed Effects Model' and 'Random Effects Model' (Staikouras & Wood, 2004). Appendix-B indicates 'Prob>chi=0.0000', which denotes that the null hypothesis is rejected and the alternative hypothesis is accepted because it is considered as significant result of p-value at the level of 1%. So, 'Fixed Effects Model' is used instead of Random Effects Model to determine significant effects of independent variables on dependent variable and to check the fitness of the model.

4.6 Fixed Effects Model

Table 6: Test of ANOVA for Model Significance (Fixed Effects Model)

Fixed-effects (within) regression	Number of observations	160
Group variable: id	Number of groups	16
R-sq: within = 0.8427	Obs per group: min= 10	
between = 0.0638	avg= 10	
overall = 0.6680	max =10	
	F(10,134)	71.77
corr(u_i, Xb) = -0.2501	Prob> F	0.0000

The calculated value of F is 71.77, and the table value or critical value of F(10, 134) is 2.456 at 1% level of significance, 1.902 at 5% level of significance, and 1.647 at 10% level of significance. The calculated value is more than the table value or critical value, showing the fitness of the model for further statistical analysis. Prob>F 0.0000 shows that the model is also fit for the analysis.

How the null hypothesis is rejected, and the alternative hypothesis is accepted for independent variables and how they affect the dependent variable is explained here.

Table 7: Results of Regression Analysis for Testing Significances (Fixed Effects Model)

Variables	*β*	*SE*	*t*	*p*	*[95% CI]*
tlse	-0.072	0.003	-25.00	**0.000*****	[-0.078-0.067]
tlta	0.493	0.214	2.31	**0.023****	[0.0700.916]
llata	0.199	0.180	1.10	0.273	[-0.1580.556]
llatd	-0.035	0.203	-0.17	0.863	[-0.437 0.367]
octa	-12.758	5.655	-2.26	**0.026****	[-23.943-1.573]
octi	0.056	0.032	1.77	**0.079***	[-0.007 0.120]
octd	0.667	1.056	0.63	0.528	[-1.421 2.756]
tdta	2.959	0.920	3.22	**0.002*****	[1.1394.779]
tdtl	-2.108	0.805	-2.62	**0.010****	[-3.700 -.516]
lgta	0.055	0.085	0.64	0.522	[-0.114 0.223]
cons	-0.287	0.646	-0.45	0.657	[-1.565 0.990]
sigma_u	0.176				
sigma_e	0.150				
rho	0.580 (fraction of variance due to u_i)				
F test that all u_i=0:			F(15, 134) = 6.61	Prob> F = 0.0000	

Notes: ***= P<0.01, **= 0.05>P≥0.01, *= 0.10>P

The regression results using Fixed Effects Model reveals that Total Liabilities to Shareholders' Equity (tlse), and Term Deposits to Total Assets (tdta) have significant effects on Return on Equity (ROE) at 1% level of significance implies rejection on null hypotheses H_1 and H_8. Total Liabilities to Total Assets (tlta), Operating Cost to Total Assets (octa), and Term Deposits to Total Liabilities (tdtl) have significant effects on Return on Equity at 5% level of significance implies rejection on null hypotheses H_2, H_5 and H_9. Operating Cost to Total Income is significant at 10% level resulting rejection of null hypotheses H_6. On the other hand, Loan, Leases, & Advances to Total Assets (llata), Loan, Leases, & Advances to Total Liabilities (llatl), Operating Cost to Term Deposits (octd), and Logarithm of Total Assets (lgta) did not significantly affect Return on Equity (ROE) implies that we failed to reject hypotheses H_3, H_4, H_7, and H_{10}.

5. Conclusion

Non-bank Financial Institutions (NBFIs) are practicing businesses as essential organs of the financial system in response to the economic development of Bangladesh. This study uncovers that Total Liabilities to Total Assets (tlta), Loan, Leases & Advances to Total Assets (llata), Term Deposits to Total Assets (tdta) and Logarithm of Total Assets (lgta) have significant positive effects on profitability. On the other hand, Total Liabilities to Shareholders' Equity (tlse), Operating Cost to Total Assets (octa) and Term Deposits to Total Liabilities (tdtl) have negative significant effects on profitability. These variables are most contributing determinants of profitability. Operating Cost to Term Deposits (octd) and Loan, Leases & Advances to Term Deposits (llatd) have no significant effects on profitability. Here, scope is expected to create for updating and modifying these certain insignificant factors through further studies. This study is contemplated to provide inclusive indications to the policymakers, regulators, and concerned about dominant non-bank specific factors of NBFIs for future needs in policymaking and regulating. Stakeholders, academicians, and researchers will also get ideas about these dominant factors for further research and analysis. This study constitutes some limitations because areas of non-performing loans, capital adequacy, and liquidity measures are not discussed here. It is expected that researchers are encouraged to pay attention to these specific areas for potential analysis and further studies if necessary.

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Appendix

A. Hausman Test

	---- Coefficients ----			
	(b) **re**	**(B)** **fe**	**(b-B)** **Difference**	**sqrt (diag(V_b-V_B))** **S.E.**
tlse	-0.0701193	-0.0723301	0.0022108	0.0015505
tlta	0.9703876	0.492959	0.4774286	0.0668481
llata	0.4156477	0.1987073	0.2169404	.
llatd	-0.1803521	-0.0351034	-0.1452487	0.095342
octa	-10.55406	-12.75835	2.204287	.
octi	0.0338098	0.0564157	-0.0226058	0.020585
octd	1.25983	0.6674172	0.5924132	.
tdta	2.425838	2.959261	-0.5334233	0.3306652
tdtl	-0.390514	-2.107957	1.717443	.
lgta	0.1504549	0.05467	0.095785	.

chi2(10) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 773.65
Prob>chi2 = 0.0000