

The Effect of Efficiency on Firm's Value: Evidence from Private Commercial Banks of Bangladesh

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Abstract

Efficiency of any firm plays an inevitable role to the firm's success. The purpose of this study is to exhibit the impact of efficiency on the value of the Bangladeshi firms. For this study 13 private commercial banks of Bangladesh for the year 2015-2019 have been taken as sample firms. This study is empirical in nature and convenient sampling technique has been used. Financial ratios have been calculated to measure the efficiency of the banks and efficiency ratio along with associated five ratios i.e., return deference of interest-bearing assets, return on equity, return on assets, net interest margin and loan to deposit ratio have been taken into consideration for this study. Regression analysis has been conducted with a view to demonstrating whether there is any relationship between the efficiency of the firm and the value of the firm. It has been found that efficiency ratio, return deference of interest-bearing assets, return on assets and net interest margin have significant impact on the firm's value. On the other hand, return on equity and loan to deposit ratio have not been found to have significant impact on the value of the firm.

Keywords: Efficiency, Firm's value, Regression, Banking Sector

1. Introduction

In last two decades, the business firms in Bangladesh have been facing tremendous competition. For the firms' own survival, they are continuously concentrating more on enhancing their efficiency level. This study is trying to figure out where enhancing efficiency is leading a firm turning into bigger in size and ensures its survivability. In our study we have considered the banking sector of Bangladesh, a component of the financial systems, which plays a significant role in the economic growth. The efficiency of financial institutions has been a crucial point of banking research whose findings constitutes of the bank soundness, bank safety, bank competitions and

implications related to improving operating performance and efficacy (Sun & Chang, 2010). It is considered that improvements in efficiency level help in measuring banks' profitability levels and sustainability of the country's economic growth. Furthermore, efficiency measurement assists to understand the firm's maximization in terms of profit and wealth since it takes into consideration the effect of the changes in outputs and inputs of the expense, revenue, asset, liability, and equity scale and scope. Higher efficiency may lead to increase demand for industrial investment and dominant economic savings by the bank. Furthermore, the stronger efficacy level in the banking sector helps to maintain financial growth and continuous development. The efficiency of the banks provides a complete description of the economic goal of a bank and suggests taking necessary steps to improve its performance. The main of this study to demonstrate the impact of efficiency level on the firm's respective value. It is suggested that the efficiency of bank management can be measured by estimating profit efficiency levels (Maudos J. P., 2003). Kirkwood and Nahm (2006) observed that changes in efficiency level of a firms are reflected in the stock returns. Besides, changes in efficacy are also mirrored in changes in stock price and the stocks of the efficient banks tend to outperform the inefficient ones (Bec06). A few researchers have studied the effect of efficiency on the value of the firm in the banking sector. But very negligible research related to this has found to be conducted in the Bangladesh context.

2. Literature Review

There has been a growing interest in the literature to measure the efficiency of banks. The number of the papers developed to identify bank efficiency is not negligible but very few of them have attempted to use earnings-based financial ratios such as return difference of interest-bearing assets (RDIBA), return on equity (ROE), return on assets (ROA), and net interest margin (NIM) with a view to determining the efficiency of banks. Hoque and Rayhan (2012) evaluated the annual reports of 24 different banks of Bangladesh adopting data envelopment analysis. They have found that banks with higher technical efficiency seemed to be in the top ranks (Hoque & Rayhan, 2012). In 2013, they conducted a study again to find the efficiency of banking sector in Bangladesh. They examined the efficiency focusing on the five variables such as operation income, operation profit, operation cost, deposits and total assets and got the same results (Hoque & Rayhan, 2013). Raju (2017) studied about the cost and profit efficiency of Bangladeshi commercial banks undertaking 29 private commercial banks (including 22 are conventional private commercial banks and 7 are Islamic Shariah based private commercial banks) and 6 state-owned commercial banks and pointed out that the conventional private commercial banks are more efficient compared to Islamic Shariah based private commercial banks in both cases of cost and profit. It was also observed that the profit efficiency of commercial banks lessened because of the increasing expenses incurred by the banks to handle the intense industry competitions and to give superior services to potential and present

customers (Raju, 2017). There are several studies have been conducted to figure out the relation between efficiency and firm's different attributes. A study to identify the impact of the financial aspects on the operating efficiency has been conducted taking 24 Egyptian banks which have been analyzed for the period 2001-2008. It has been realized that the operating efficiency has significant relation with the asset quality, capital adequacy, credit risk and liquidity of banks (Amer, Moustafa, & Eldomiaty, 2011). For examining the relationship between bank efficiency and share performance, a research was undertaken considering the commercial banks listed in Karachi Stock Exchange (KSE) over the period 2003 to 2007 and found a positive and significant relation between change in annual bank efficiency and share performance (Aftab, Ahamad, Ullah, & Sheikh, 2011). Bhullar (2017) investigated the impact of operating efficiency on firm valuation for two economic sectors fast moving consumer goods (FMCG) considering 30 Indian firms from the period of 2005 to 2015 and taking six financial ratios as proxy for operating efficiency. The results reported that fixed asset turnover ratio (FATO) and net profit margin expressed negative relation with the firm valuation in pharmaceutical sector and fixed asset turnover ratio (FATO) was found to have negative relation with firm valuation for FMCG sector.

3. Methodology

3.1 Sample companies: Among 31 private commercial banks (PCBs) listed in Dhaka Stock Exchange (DSE), 13 of them have been considered as sample companies based on the following conditions:

- i. Banks which are founded between the year of 1990 to 2001. But because of the weight of the sample size, 3 banks which were established before 1990 have been taken into consideration.
- ii. Banks which are conventional PCB, not Islami Shariah Based PCB.
- iii. Banks which do not provide mobile banking services i.e. Bkash and Rocket.

No.	Name of The Bank	Year of Establishment
1	AB Bank Limited	1992
2	Bank Asia Limited	1999
3	Trust Bank Limited	1999
4	One Bank Limited	1999
5	Southeast Bank Limited	1995

6	Uttara Bank Limited	1965
7	National Bank Limited	1983
8	Dhaka Bank Limited	1995
9	Prime Bank Limited	1995
10	Eastern Bank Limited	1992
11	Export Import Bank of Bangladesh Limited	1999
12	Jamuna Bank Limited	2001
13	Mercantile Bank Limited.	1999

The data of these sample companies have been gathered from secondary data sources. Annual reports of these sample private commercial banks from 2015-2019 have been used to collect the required data.

3.2 Research variables: In this study, financial ratios have been considered to measure the efficiency of the sample private commercial banks. No ratio can indicate the efficiency on its own and that's why six different ratios have been selected to measure efficiency (Halkos & Salamouris, 2004).

Return difference of interest-bearing assets (RDIBA):

$$RDIBA = [IRSI_t / \{(IBA_t + IBA_{t-1})/2\}] - [IPSC_t / \{IBL_t + IBL_{t-1}/2\}]$$

where IRSI is the interest receivable and similar income; IPSC, interest payable and similar charges; IBA, interest bearing assets; IBL, interest bearing liabilities and t, the time. It measures the difference between the interest income that is divided by the assets (produce interest) and the interest cost that is divided by the liabilities. If the difference is large, it means the management of the bank's capital is working efficiently.

Return on equity (ROE):

$$ROE = PBT_t / \{(E_t + E_{t-1})/2\}$$

In the formula, the PBT is the profit/ loss before tax; E is the equity and t, the time. It helps us to understand the profitable capability and determines the efficiency of the banks in managing its equity.

Return on total assets (ROA):

$$ROA = PBT_t / \{(TA_t + TA_{t-1})/2\}$$

Here, PBT that is the profit (loss) before tax; TA, total assets and t, the time. This ratio indicates the capability of a bank in handling its assets.

Efficiency ratio (EFF):

$$EFF = OE_t / GOP_t$$

In the formula of EFF, OE is the operational expenses; GOP is the gross operating profit (loss) and t is the time. This ratio shows in the percentage of gross income which swallowed by the operational costs (management, appropriation, depreciation, etc.). The smaller the EFF is, the more efficient the bank is. Because smaller EFF tells us that, the percentage of the bank's profits and losses is sufficient to cover its financial and other expenses.

Net interest margin (NIM):

$$NIM = NII_t / \{TA_t + TA_{t-1}\}/2\}$$

The NII is the net interest income which is calculated by interest received minus interest paid; TA is the total assets and t is the time. This ratio shows the assets' efficiency. It helps to measure the efficiency of investment decision, making by the management, by comparing the expenses, income and debt of these investments. It is considered as the indicator of the bank's growth and profitability. IF NIM has a positive value, it suggests that an entity operates efficiently in terms of profitability, whereas a negative value implies investment inefficiency.

Loan to Deposit Ratio (LDR):

$$LDR = L_t / D_t$$

Where L the loan, D the deposit and t the time. The LDR is used to assess a bank's liquidity by comparing a bank's total loans to its total deposits for the same period. If the ratio is too high, it means that the bank may not have enough liquidity to cover any unforeseen fund requirements.

Multiple regression has been employed as a statistical technique to determine the impact of independent variables on dependent variables. In this study the undertaken six financial ratios which express the efficiency of the banks have considered as independent variables while the natural log of the total assets as a measure of the value of the firm has taken as the dependent variable.

$$\text{Bank's Value (V)} = \beta_0 + \beta_1 RDIBA + \beta_2 ROE + \beta_3 ROA + \beta_4 EFF + \beta_5 NIM + \beta_6 LDR + \epsilon$$

3.3 Research hypothesis: For this research, six null hypotheses have been developed to test the relationship between efficiency and the value of the firm.

H₀₁: There is no relationship between the RDIBA and the Bank's Value.

H₀₂: There is no relationship between the ROE and the Bank's Value.

H₀₃: There is no relationship between the ROA and the Bank's Value.

H₀₄: There is no relationship between the NIM and the Bank's Value.

H₀₅: There is no relationship between the EFF and the Bank's Value.

H₀₆: There is no relationship between the LDR and the Bank's Value.

4. Analysis and interpretations:

To examine how the independent variables have relation with each other, correlation analysis has been conducted. In our study, significant positive correlation has been found between RDIBA and NIM, and ROE and ROA. RDIBA and NIM and RDIBA is positively correlated with ROE. Besides, negative correlation has been found between EFF and ROE.

Table 1: Correlation						
	<i>RDIBA</i>	<i>ROE</i>	<i>ROA</i>	<i>NIM</i>	<i>EFF</i>	<i>LDR</i>
RDIBA	1					
ROE	0.411192	1				
ROA	0.212365	0.739764	1			
NIM	0.969484	0.388951	0.270154	1		
EFF	0.150589	-0.33046	-0.34388	0.125713	1	
LDR	0.206125	-0.0638	-0.15838	0.130229	-0.13481	1

From the regression statistics, adjusted R^2 indicates that more than 40% of the dependent variables can be explained by independent variables. Besides, ANOVA test specifies that the regression analysis of this study is significant.

Table 2: Regression Statistics	
Multiple R	0.687307559
R Square	0.472391681
Adjusted R Square	0.41781151
Standard Error	0.210161927
Observations	65

Table 3: ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	6	2.29365	0.38227	8.65501	0.00000
Residual	58	2.56175	0.04417		
Total	64	4.85539			

Regression analysis has been conducted to know whether our adopted efficiency related six ratios have significant impact on the value of the firm.

Table 4: Regression analysis								
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	26.637	0.245	108.557	0.00000	26.146	27.129	26.146	27.129
RDIBA	-39.236	15.577	-2.519	0.01455	-70.416	-8.056	-70.416	-8.056
ROE	-0.009	0.007	-1.199	0.23537	-0.023	0.006	-0.023	0.006
ROA	-0.210	0.088	-2.390	0.02013	-0.385	-0.034	-0.385	-0.034
NIM	0.481	0.175	2.747	0.00801	0.130	0.832	0.130	0.832
EFF	-0.405	0.088	-4.604	0.00002	-0.582	-0.229	-0.582	-0.229
LDR	0.005	0.004	1.209	0.23170	-0.003	0.013	-0.003	0.013

In this regression model, it has been observed that the p-value of RDIBA is $0.01455 < 0.05$ which rejects the null hypothesis and exhibits that RDIBA has significant impact on the value of the bank. Similarly, EFF has significant impact on the value of the bank as its p-value is $0.00002 < 0.05$. From the regression table, it can also be said that ROA and NIM has also significant relation with the bank's value. On the other hand, p-value of ROE is 0.23537, which is greater than 0.05, accepts the null hypothesis. That means there is no significant relationship between ROE and the value of the bank. Similarly, no significant relationship has been found between LDR and the bank's value. So, it can be apprehended that LDR and ROE don't have significant impact on the value of the firm.

5. Conclusion

This study set its objective to comprehend the relation of efficiency with the value of the firm and undertook the banking industry, as the banks of Bangladesh has always been looking for excelling its efficiency. The study attempted to comprehend whether this increasing efficiency has any impact on the value of the private commercial banks (PCBs). From the analysis part it has been apprehended that among the six ratios, efficiency ratio (EFF), return deference of interest-bearing assets (RDIBA), return on assets (ROA) and net interest margin (NIM) have been found to have significant impact on the bank's value. On contrary, it has been found that ROE and LDR have no significant impact on the bank's value.

6. References

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