International Journal of Finance and Commerce
www.commercejournals.com
Online ISSN: 2664-715X; Print ISSN: 2664-7141
Received: 05-05-2019; Accepted: 08-06-2019
Volume 1; Issue 3; July 2019; Page No. 23-27

The impact of banking sector financial performance on the economic growth in Bangladesh

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Abstract
This study mainly examines the impact of banking sector financial performance on the economic growth in Bangladesh. Here, 16 commercial banks that are operating in the country have been considered. These companies are observed over the period of 10 years (2008-2017) giving rise to 160 panel observations. In this study, Gross Domestic Product Growth Rate as a measure of economic growth has been used as a dependent variable. Whereas, Bank Size, Return on Equity, Return on Investment and Operating Profit Growth Rate taken as a representative of banking sector financial performance have been used as explanatory variables. The result of our study provide evidence that all the explanatory variables have statistically significant influence on the Gross Domestic Product Growth Rate meaning that the banking sector financial performance has significant impact on the economic growth in Bangladesh. This study suggests that the concerned authority should give emphasis on the development of the banking sector thereby accelerating the economic growth. This study obviously provides some noteworthy information to researchers, governments, financial analysts, banking policy makers and supervisory authorities.

Keywords: economic growth, commercial banks, gross domestic product, return on equity, return on investment, operating profit

1. Introduction

The banking sector in any particular economy can be described as sector markets and instruments which include a regulatory and legal framework that allows trade to be conducted through the extension of credit and deposits. According to Abusharbeh (2017) [1], banking sector is crucial to the economic growth because of its ability to collect deposits from the surplus unit and provide loans to the deficit unit for encouraging investment and production functions; its ability to create economic expansion for most of the economic sectors including agriculture, industry and trade sector and its contribution to the formation of initial capital for investment projects. Thus, the banking sector financial services play a vital role in the economic growth and development of a country (Kenourgios and Samitas, 2007).

Bangladesh is a developing country and it suffers from various social, environmental, political and economic issues. These issues must be addressed for the country's overall develop ment. In this regard, the economic development is one of the main factors that can solve many of its current problems. Again, economic growth is an essential condition for economic development and the banking sector development is flourishing the economic growth of this country (Rahman, S. and McDonald, 2012).

However, the main objective of this study is to examine the impact of banking sector financial performance on the economic growth (measured by Gross Domestic Product Growth Rate) in Bangladesh. Thus, the main question addressed in this study is: What role banking sector is playing towards the economic growth in Bangladesh?

The rest of the sections are designed as follows. Section two discusses the problem statement of the selected topic. In section three, previous literature relevant to the topic has been reviewed. The next section explains the data and methodology used in this study. Section five shows the results of the analysis of this study and the final section provides the conclusion of the present study along with references.

2. Statement of the problem

The causality association between banking sector financial performance and economic growth has been a controversial matter. The debate is centered on whether the banking sector development leads to economic growth or not. Some economists state that banking sector development plays a vital role in the economic growth of a country whereas others believe that economic growth creates demand for financial services, and the banking system responds to this demand (Awdeh, 2012). Therefore, it is needed to check whether the banking sector financial performance has any significant effect on economic growth or not. However, the main objective of this study is to examine the impact of banking sector financial performance on the economic growth in Bangladesh. As, research works in this particular area are very rare in Bangladesh, the reference material in this area is also rare. Therefore, the researcher has been induced to conduct such a research paper with a view to filling up the study gaps.

3. Literature Review

To find out the research gap in the selected field of the study and formulate a plan for conducting the present study, a number of related literatures have been reviewed.

3.1 Economic growth
The term "economic growth" may be defined as an increase in the level of net national production and income for a given period of time (Dewett, 2005; Todaro and Smith, 2006). According to Ochejele, (2007), the key characteristics of economic growth are high growth rate of per capita income, high structural transformation rate and international flows of resources (labor, goods and capital). However, it is concluded that economic growth is the increase in the level of real production of goods and services per head. The gross domestic product (GDP) is considered as the most important economic indicator because it tells us about the overall health of the economy. Government and economic decision makers generally uses GDP in planning and formulate the policies (Hamza and Khan, 2014; Alkhazaleh, 2017). Thus, GDP is a comprehensive measure which covers the production of goods and services including government services, and investment goods. Awdeh (2012); Hamza and Khan (2014); Adekola (2016); Abusharbeh (2017) [1]; Alkhazaleh (2017); Oluitan (2012); Vaithilingam, *et al*. (2003); Al-Qudah, (2016) used GDP as a measure of economic growth in their study.

3.2 Banking Sector Performance
The banking sector performance has a significant impact on the economic growth of a country. In this regard, the following previous studies have been reviewed.

3.2.1 Profitability
Profitability is the key to economic growth because the health of most industries depends on the availability of finance to facilitate transaction provided by the banks in the economy (Adekola (2016). Return on Asset (ROA) and Return on Equity (ROE) are the two important measures of profitability (Rosikah *et al*. 2018). Adekola (2016); Hamza and Khan (2014); Alkhazaleh (2017); Fidelis, *et al*. (2010) showed that profitability of banks has a significant impact on the economic growth of a country.

3.2.2 Deposits
Deposits are the amount of money that banks receive from the people and pay interest. Investment and lending activities of banks depends on the deposited amounts. Thus, collecting deposit is one of the important functions of a bank. There is a significant impact of deposit on the economic growth of a country (Hamza and Khan, 2014; Alkhazaleh, 2017).

3.2.3 Lending
After receiving deposits, banks provide loans to the deficit unit. It is also an important function of a bank. The empirical study suggests that there is a direct association between bank lending and economic growth of a country (Oluitan, 2012; Vaithilingam, *et al*., 2003; Al-Qudah, 2016).

3.2.4 Investment
Investment is another important function of a bank. Through investing activities, bank can help to accelerate the economic growth of a country. Hamza and Khan, 2014; Alkhazaleh, 2017 concluded that there is a significant relationship between bank investment and economic growth.

3.2.5 Banking sector size
The banking sector size can be measured by the natural logarithm of the bank's total asset (Aladwan, 2015). According to Abugamea (2016), there is significant negative association between the banking sector size and economic growth as measured by Gross Domestic Product (GDP).

4. Research Methodology
4.1 Research Design and Approach
The research design of the present study is purposive in nature with the aim of examining the impact of banking sector financial performance on the economic growth in Bangladesh. In this study, quantitative research approach has been used to meet up the research objective.

4.2 Data and Sample
Depending on data availability, 16 commercial banks that are currently operating in Bangladesh have been selected as sample as purposively. This study uses annual data which covers the period of ten years (from 2008 to 2017) and forms the panel data of 160 observations. Data are mostly collected from secondary sources; i.e. annual reports of the selected sample companies and Bangladesh bank.

4.3 Variables
In order to examine the effect of banking sector financial performance on the economic growth in Bangladesh, Gross Domestic Product Growth Rate (GDPGR) as the representative of economic growth has been used as dependent variable. Besides, four explanatory variables i.e. Bank Size (BS), Return on Equity (ROE), Return on Investment (ROI) and Operating Profit Growth Rate (OPGR) taken as the representative of banking sector financial performance have been used.

Table 1: Conceptual framework of the study

Variables		Explanations /Formulas	Unit	Expected impact
Dependent Variable	Gross Domestic Product growth rate (GDPGR)	Annual % changes in the Gross Domestic Product (GDP) i.e. $(GDP_t – GDP_{t-1})/GDP_{t-1}$	Percentage	
Independent Variables	Bank Size (BS)	The natural logarithm of banks total assets.	Taka	+
	Return on Equity (ROE)	The ratio of net profit after tax to total equity	Percentage	+/-
	Return on Investment (ROI)	The ratio of net profit after tax to total investment.	Percentage	+
	Operating Profit Growth Rate (OPGR)	Annual % changes in the bank operating profit.	Percentage	+

***Source*:** Adapted from Datu, N. (2016) and Lee, C.Y. (2014)

4.5 Model

The study uses panel data regression model to examine the effect of banking sector financial performance on the economic growth in Bangladesh. In this regard, the unit root of all the panel variables has been checked employing augmented Dickey–Fullertest (ADF) test. Besides, Variance Inflation Factors (VIF) has been employed for checking multicollinearity problem among explanatory variables. Moreover, White's test is used to check the heteroskedasticity problem in the regression model. All the tests and model are estimated using E-views and gretl econometric software. However, in order to achieve the research objective, the following regression model has been proposed:

$GDPGR_{it} = \alpha_i + \beta_1 BS_{it} + \beta_2 ROE_{it} + \beta_3 ROI_{it} + \beta_4 OPGR_{it} + u_{it}$

Where, α represents the intercept of the model, i is the index of commercial banks; t is the index of time periods (years); β_k represents the regression coefficient to be estimated (k is the index of explanatory variables and k = 1, 2, 3,…,7); u is the error term[4] of the model and GDPGR represents Gross Domestic Product growth rate, BS is the Bank size, ROE represents Return on Equity, ROI is the Return on Investment and OPGR is the Operating Profit Growth Rate.

4.6 Research Hypotheses

Based on the objective of the present study, the following hypothesis has been tested:

H_1: Banking sector financial performance expressed by Bank size (BS), Return on equity (ROE), Return on Investment (ROI) and Operating Profit Growth Rate (OPGR) has significant impact on the Gross Domestic Product growth rate (GDPGR) taken as a representative of economic growth.

4.1 Descriptive Statistics

In this section, descriptive statistics of the selected dependent and independent variables have been determined over the sample period which shows a general overview of the characteristics of the data.

Table 2: Descriptive Statistics

Variables	Mean	Median	Maximum	Minimum	S.D.	Skewness	Ex. kurtosis	C.V.
GDPGR	0.063	0.063	0.074	0.053	0.006	0.097	-0.905	0.10
BS	25.840	25.817	27.526	24.178	0.705	0.205	-0.221	0.03
OPGR	0.147	0.125	1.021	-0.418	0.236	0.542	1.261	1.61
ROE	0.143	0.141	0.538	-2.599	0.241	-9.328	103.250	1.69
ROI	0.105	0.101	0.327	0.029	0.042	1.420	5.039	0.40
Observations	160	160	160	160	160	160	160	160

The table-02 represents the descriptive statistics i.e. mean, median, standard deviation, coefficient of variation (CV), minimum, maximum, Skewness and Kurtosis of all the selected variables. In the table, the mean value of all the variables is positive. All the variables bear lower standard deviation and coefficient of variation value. The coefficient of Skeweness value of all the variables is about to zero (0.00) except return on investment (1.186).

4.2 Testing for Stationary

In this section, to test the unit root or stationary of data, Augmented Dickey–Fuller (ADF) test has been employed.

Table 3: The results of Panel Unit Root Test: Augmented Dickey–Fuller (ADF) test

	GDPGR	BS	OPGR	ROE	ROI
t Statistic	-26.07778	-19.05246	-10.85209	-12.00871	-6.065520
p-value	0.0000	0.0000	0.0000	0.0000	0.0000

According to ADF test method, the acceptance of the null hypothesis states that the common unit root exists. Whereas, the acceptance of the alternative hypothesis states that there is no unit root. In the table-03, the results of ADF panel unit root test are displayed. The result show that the null hypothesis is not accepted for all variables at the significance level of 1% because the probability values of t statistic for all the variables are very low. So, the results of the ADF test suggest that all the variables are stationary.

4.3 Testing for Multicollinearity Problem

In this section, the variance inflation factors (VIF) for all the selected independent variables have been determined in order to investigate multicollinearity problem. The table-04 shows the results of VIF. The results conclude that there is no Multicollinearity problem between the independent variables in the model because the variance inflation factors (VIF) for all the variables are less than 10 (Hair *et al*., 1995).

Table 4: The variance inflation factor (VIF)

Variables	BS	OPGR	ROE	ROI
Variance Inflation Factors	1.484782	1.352123	1.296283	3.040860

4.4 Heteroskedasticity Test

Under the assumption of heteroscedasticity, the variance of the errors is not constant. In the present study, to check the presence of heteroscedasticity in the residuals, the White's Heteroskedasticity Test has been employed (see table-05). According to this test method, the acceptance of the null hypothesis indicates the existence of homoscedasticity. Whereas, the acceptance of the alternative hypothesis states that there is a problem of heteroskedasticity.

Table 5: The Results of White's Heteroskedasticity Test

Test	Value
Chi-square	50.225414
P-value	0.000006

The results of the test indicate the evidence of heteroskedasticity problem because the chi-square values is high (50.22) with very low probability (0.000006) that is the null hypothesis is not accepted. In order to get unbiased results from the model, we have to remove Heteroskedasticity problem. In this regard, Heteroskedasticity Corrected model has been used in this study.

4.5 Regression Analysis
Table 06 shows the results of regression model which examine the impact of banking sector financial performance on the economic growth (as measured by Gross Domestic Product Growth Rate) in Bangladesh. The results of this model demonstrate that Bank Size (BS) and Return on Equity (ROE) have positive impact whereas Return on Investment (ROI) and Operating Profit Growth Rate (OPGR) have negative impact on the Gross Domestic Product Growth Rate (GDPGR). All the four explanatory variables have statistically significant impact on the Gross Domestic Product Growth Rate (GDPGR) at the significance level of 1%. Therefore, the banking sector financial performance significantly affects the economic growth in Bangladesh.

Table 6: Relations between banking sector financial performance and economic growth

Variables	Coefficient	Std. Error	t-ratio	p-value
const	−0.0639506	0.0135800	−4.709	0.0001
BS	0.00498355	0.000524672	9.498	0.0001***
ROE	0.00651545	0.00235854	2.762	0.0064***
ROI	−0.0149013	0.00546912	−2.725	0.0072***
OPGR	−0.00437800	0.00109062	−4.014	0.0001***
Observations	160			
R-squared	0.6365			
Adjusted R^2	0.6271			
F-value	67.84106			
Prob. (F-statistic)	0.0000			

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

The fitting of the model seems very good since the value of adjusted r-squared is 62.71%. This implies that the ability of independent variables to explain dependent variable; Gross Domestic Product Growth Rate (GDPGR); is about 62.71%. Besides, the F-value is significant at 1% level suggesting that the coefficients of all independent variables are statistically significantly different from zero. Overall, the model is well fitted.

6. Conclusion
The banking sector is one of the fast growing industries in Bangladesh. It plays a unique role in accelerating the economic growth in Bangladesh by creating economic expansion for most of the economic sectors including agriculture, industry and trade; and by providing initial capital for investment projects. The present study attempts to find out the association between the banking sector financial performance and economic growth. This study concludes that there is a statistically significant impact of banking sector financial performance on the economic growth in Bangladesh. Based on the findings of the study, it is suggested that the concerned authority should take necessary steps for the development of the banking sector and thereby accelerating the economic growth. Besides, this study will offer some noteworthy information to the banks, investors, governments, experts, and regulatory authorities. Finally, it is recommended that further research and investigations can be carried out for extended period of time using additional data and more sophisticated research methodologies.

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