Determinants of Financial Performance of Banks in Bhutan: A Case study of Bhutan National Bank Ltd

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Abstract

Banking can be defined as an activity of accepting, as-well-as preserving money owned by other individuals and entities. Then banks lend out this money to other needy individuals or corporates in order to earn a profit. The economy of a country mostly depends on how strong their banking system is. This paper highlights the determinants that are responsible for the financial performance of commercial banks presently operating in Bhutan with a reference to Bhutan National Bank. The data collected for this study are from Bhutan National Bank from 2005-16. Multivariate regression analysis is performed on three dependent variables (Return on Assets, Return on Equity and Net Interest Margin) using five independent variables. The result showed that for explaining the determinants of financial performance of Banks in Bhutan, ROA model was considered to be the best as compared with ROE and NIM. The independent variables which had bearing on ROA were Interest income to total income, Interest on loan, Interest expenses to deposit and Credit to deposit ratio.

Keywords: *Bhutan National Bank Limited, Return on Assets, Return on Equity, Net Interest Margin, Determinants*

The banking sector plays an important role in channelizing the funds from savers to borrowers. The growth and development of an economy largely depends on the success and efficient functioning of the banking sector. For any sector to survive, profitability of that sector is critical. There are many factors that affect the profitability of banks. These factors are not only bank specific but also industry specific. Banking performance is also affected by the macro economic variables. These variables are GDP of the country, inflation rate, the financial environment and also the development level of a country.

Banks are the financial intermediaries that play an important role in the development of a country's economy by providing different services. It strengthens the economic activities and growth of an economy and is also considered as the back bone of the economy.

This paper aims at determining the factors that are affecting the financial performance of Bhutan National Bank Limited (BNBL). It was established in 1997 with the technical assistance of Asian Development Bank. BNBL operates through 11 branches in the country and it was the first bank to launch ATM service in Bhutan for convenient banking service.

The findings of this paper are based on three different models which consider three different dependent variables; Return on Assets, Return on Equity and Net Interest Margin.

Review of Literature

The banking sector is considered to be a crucial part of a sustainable economic growth in any economy. However, the performance of banking sectors is affected by many internal and external forces of a country's economy. In the words of Nouaili, Abaoub, & Ochi, (2015), the performance of banks is measured mainly by two advanced indicators. These are the profitability of assets (i.e. return on assets and return on equities) and the net margin interest. However, the performance of banks cannot only be measured by these two variables. There are other variables that must be considered for the overall performance of banks.

These variables include number of managers, the capital ratio, loans, ownership structure, the expenses management, the liquidity ratio as well as the size of the bank. In the findings of Naifar, (2010) the performance of banks was significantly related to expenses management, ownership structure and bank loans. The banks should also have to consider these factors to be more competitive in the market and this will in turn encourage financial innovation.

An empirical study conducted by Petria, Capraru, & Ihnatov (2015) revealed that credit and liquidity risk, management efficiency, the diversification of business, the market competition and the economic growth have influence on bank profitability, measured by Return on Average Assets and Return on Average Equity. In another study by Tariq et. al. (2014), the authors have explained the banks' profitability by using Return on Equity and Net Interest Margin. The result indicated that the capital strength of a bank was found to have high significance in affecting its performance and was observed to be less risky. This in turn would lead to the banks having higher profit.

Khalfaoui & Saada, (2015), conducted an empirical analysis on the factors affecting the performance of banks in Tunisia. It was found that credit risk management, liquidity, size, and disclosure of credit information are the main determinants of bank performance. In another study by Jabbar (2014), the author has also concluded by stating that the size of banks and adequate capital helps in earning more profit for a firm. The other studies have found that the performance of banks is also affected by the board of directors of banks and its management (Ongore & Kusa, 2013)

The determinants of bank performance can be divided in two factors that is; internal and external factors. Internal factors comprise of microeconomic determinants, while external variables are those which reflect economic and legal environment in which the bank operates. The results of this paper show that size, control and credit quality are the important variables that can determine the performance of bank. The size of banking business is considered to be important factor because larger banks which are expected to promote economies of scale, reduce the cost of gathering and processing information. (Garoui, Sessi, & Jarboui, 2013). Staikouras & Wood (2004) in their study stated that the profitability of banks operating in European countries is influenced not only by those factors related to their management decisions but also by the changes in the external macroeconomic environment. This study contradicts the other studies where the authors have found that the profitability of a bank is affected by the internal business environment (Bhatia, Mahajan, & Chander, 2012; Samad, 2015).

The performance and profitability of bank is not only determined by liquidity, size, credit risk management, etc. but also effected by external forces. Wong et.al (2007), in their

report have presented that when market consolidation take place, the competition of banks decreases in that place by increasing the profitability of the firm. On the other hand, cost efficiency is positively correlated with bank's profitability. The banks whose cost efficiency is high will be able to attract more customers.

The performance of banks are also affected by the economic growth (GDP) of the country. In the study of Mushtaq et. al. (2014), the author concluded by stating that the GDP of a country can have an impact on financial performance of the banks.
In other studies, the authors have found ROA as a significant measure of determinants for explaining profitability of banks using panel data regression analysis and independent variables like equity, overheads, interest bearing assets, macroeconomic and financial structure indicators (Naceur, 1992), size, capital credit risk, efficiency, stock market capitalization, GDP, interest rates, cyclical outputs, economic development (Ramlall, 2009), asset utilisation, efficiency, total income to total capital employed, deposit concentration, loan concentration, asset concentration, total deposits to owned funds, capital adequacy, interest expended to interest earned, interest spread, net interest income to total funds (Malhotra, Poteau, & Singh, 2011). On the other hand some authors have found NIM and ROE as a significant measure of determining banks profitability using independent factors like default risks, opportunity cost of non-interest bearing reserves, leverage and management efficiency (Angbazo, 1997), individual bank's characteristics as well as macroeconomic conditions, taxation, regulations, financial structure and legal indicators (Demirguc-Kunt & Huizinga, 1999), Capital Asset Ratio (Berger, 1995).

With the background of above mentioned reviews, this paper will make an attempt to identify the determinants that have an impact on financial performance of banks in Bhutan with special reference to BNBL.

Objectives of the Study

The following are some of the objectives for this study:

a) To identify factors that have a significant bearing on the performance of Bhutan National Bank Limited
b) To determine which factors impact significantly on bank's profitability.
c) To determine the best measure of profitability from NIM, ROA and ROE.

Hypotheses of the Study

Based on review of literature the following hypotheses are formed.

H_{0a}: Interest income to total income has no significant relation with profitability of BNBL
H_{0b}: Interest on loan ratio has no significant relation with profitability of BNBL
H_{0c}: Interest expenses to deposit has no significant relation with profitability of BNBL
H_{0d}: Credit to deposit ratio has no significant relation with profitability of BNBL
H_{0e}: EPS has no significant relation with profitability of BNBL

Research Methodology

Research design

This study uses a hypothesis testing research design. Three models are checked with different dependent variables i.e. ROA, ROE and NIM. The model equations are given below:

Model I: $ROA = a + b_1 IITI + b_2 IITL + b_3 IETD + b_4 EPS + b_5 CDR + e$

Model II: $ROE = a + b_1 IITI + b_2 IITL + b_3 IETD + b_4 EPS + b_5 CDR + e$

Model III: $NIM = a + b_1 IITI + b_2 IITL + b_3 IETD + b_4 EPS + b_5 CDR + e$

Where a is constant and b_1, b2, b3, b4 and b_5 are the coefficients of the respective independent variables; e is the error term.

Sources of data

The data that are used in this paper are all from secondary sources. The data is collected from the annual reports of Bhutan National Bank (2005-2016) and annual reports of Royal Monetary Authority of Bhutan (2005-2016). Information related to all dependent and independent variables is collected for a period of 10 years from BNBL and RMA.

Operational design

Since this paper aims at identifying the determinants that have a bearing on the performance of Bhutan National Bank, the following variables are considered.

1. **Return on Assets (ROA):** It is a financial ratio that shows the percentage of profit a company earns in relation to its overall resources. ROA is generally calculated by dividing net income divided by total assets. Net income is calculated by deducting taxes from gross profit of the company. The total assets derived from the balance sheet of the company.

2. **Return on Equity (ROE):** It is a measure of profitability that calculates how much of profit a company generates with the money collect from shareholders' equity. Return on Equity is calculated by dividing Net Income by Shareholders' Equity. ROE is sometimes called “return on net worth.” Net Income is derived from income statement of the company which is calculated by deducting taxes from gross profit of the company. A rising ROE suggests that a company is increasing its ability to generate profit without needing as much capital.

3. **Net Interest Margin (NIM):** NIM is a ratio that measures how successful a firm is at investing its funds in comparison to the expenses on the same investments. A negative NIM denotes the interest expenses greater than the amount of returns generated by the investment.

4. **Earnings per Share (EPS):** EPS is generally considered to be the single most important variable in determining a share’s price. It is the part of profit earned by the company which is earned from each outstanding shares of the company.

5. **Interest income to total income (IITI):** It is the difference in revenue generated from a bank’s assets and expenses associated with paying out its liabilities. It is calculated by dividing interest income of the company with company’s total income.

6. **Credit deposit ratio (CDR):** It is the ratio of how much a bank lends out of the deposits it has mobilised. Credit deposits ratio helps in assessing a bank's liquidity and indicates its health. If the ratio is low, banks may not be earning as much as they could be. If the ratio is high, it means that banks might not have enough liquidity to cover any unforeseen funds requirement.

7. **Interest expenses to total deposits (IETD):** It is the ratio of interest spent to total deposits of the bank.

8. **Interest Income to loans & advances (IITL):** It is the ratio of interest income divided by total loans and advances.

Tools for analysis

The data collected is analysed using statistical software. The tools like correlation and multivariate linear regression modelling is used to model the determinants. In order to find the best model for financial performance of banks in Bhutan, adjusted R2 along with F-statistics, Variance inflation Factor (VIF) and Durbin-Watson (DW) statistics is used.

Findings and Analysis

To determine the relation of different variables with the performance of banks, three different models were tested using regression. These models considered three different dependent variables which were Return on Assets, Return of Equity and Net Interest Margin. Collinearity Diagnosis was also done to check if there was any multi collinearity problem. Some of the results are discussed below.

Table 0.1: Correlation matrix of independent variables

Variables	Statistics	CDR	IITI	IITL	EPS	IETD
CDR	Correlation (Sig. 2-tailed)	1				
IITI	Correlation (Sig. 2-tailed)	0.517 (0.085)	1			
IITL	Correlation (Sig. 2-tailed)	-.652 (0.021)	-0.438 (0.154)	1		
EPS	Correlation (Sig. 2-tailed)	-0.018 (0.956)	0.443 (0.149)	-0.039 (0.904)	1	
IETD	Correlation (Sig. 2-tailed)	.876 (0.000)	0.355 (0.257)	-0.326 (0.301)	-0.184 (0.568)	1
Source: Authors' calculations						

Table 0.1 presents the correlation between different independent variables considered in three different models. From the table it can be seen that the most significant variables were Credit to deposit ratio and Interest expenses to deposit ratio. Interest on loan shared a strong negative relation with Credit to Deposit ratio.

Table 0.2: Descriptive Statistics of the dependent and independent variables

DV & IV	Minimum	Maximum	Mean	Std. Deviation
ROA	0.017	0.042	0.034	0.008
ROE	0.298	3.364	1.562	1.068
NIM	0.024	0.058	0.042	0.010
CDR	0.068	1.310	0.794	0.346
IITI	0.857	0.988	0.913	0.040
IITL	0.106	0.998	0.190	0.255
EPS	0.190	2.682	0.977	0.815
IETD	0.025	0.064	0.039	0.013
Source: Authors' calculations				

Table 0.2 presents the descriptive statistics of three dependent variables i.e. Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (NIM) and five independent variables i.e. Credit to Deposit ratio (CDR), Interest Income to Total income (IITI), Interest Income to total Loans & advances (IITL), Earning per Share (EPS) and Interest expenses to total deposits (IETD) to be used for modelling under this study.

Table 0.3: Model I, Dependent Variable-ROA

Predictor Variables	Coefficients	Std. Error	t- statistics	Collinearity Diagnostics	
				Tolerance	VIF
(Constant)	0.122	0.038	3.228**		
IITI	-0.116	0.044	-2.654**	0.516	1.937
IITL	0.034	0.009	3.72**	0.292	3.425
IETD	-1.031	0.298	-3.463**	0.106	9.43
EPS	0.000	0.002	-0.171	0.618	1.618
CDR	0.066	0.014	4.836*	0.07	14.25
Model Summary	R^2: 0.917	Adjusted R^2:0.481	F-Value: 6.337**	P-Value: .022	DW: 1.571
Source: Authors' calculations *,** indicates the significance at 1% and 5% level of significance respectively					

Table 0.3 presents the regression analysis of model I. In this model, return on assets is considered as a dependent variable. In this model, Interest on loan (P-value 0.01) and Credit to deposit ratio (P-value 0.003) showed a positive significant relationship with ROA. Interest income to total income ratio and Interest expenses to deposit ratio on the other hand had a negative significant relation with ROA. EPS was not significant for this model. The value of adjusted R^2 is 0.481 which means that approximately 48.1% of variation on ROA is explained by its independent variables. The P-Value from ANOVA table is less than 0.05 (i.e. 0.22), which shows that there is a significant relation between the dependent and independent variables. Thus, the model I can summarily be presented as follows:

Model I: ROA=0.122-0.116IITI+0.034IITL-1.031IETD+0.066CDR

Table 0.4: Model II, Dependent variable-ROE

Predictors	Coefficients	Std. Error	t-statistics	Collinearity Diagnostics	
				Tolerance	VIF
(Constant)	7.127	1.353	5.266*		
IITI	-7.119	1.568	-4.541*	0.516	1.937
IITL	-0.995	0.325	-3.061**	0.292	3.425
IETD	15.546	10.697	1.453	0.106	9.43
EPS	1.428	0.07	20.445*	0.618	1.618
CDR	-1.107	0.488	-2.268***	0.07	14.25
Model Summary	R^2: 0.989	Adjusted R^2:0.981	F-Value: 112.743*	P-Value: 0.000	DW: 2.826
Source: Authors' calculations *,**, *** indicate the significance at 1%, 5% and 10% level of significance respectively.					

Table 0.4 presents the regression analysis of second Model where ROE is considered as a dependent variable. In this model, out of five independent variables, interest income to total income ratio, Interest on loan ratio and EPS were found to be significant. EPS was found to be strong positively significant with ROE. However, interest income to total income ratio and Interest on loan ratio was negatively significant with ROE. The value of adjusted R^2 is 0.981, which means that approximately 98.1% of variation on ROE is explained by its independent variables. The P-Value from ANOVA table is less than 0.05, which shows a significant relation between the dependent and independent variables. Thus, the model II can summarily be presented as follows:

Model II: ROE=7.127-7.119IITI-0.995IITL+1.428EPS-1.107CDR

Table 0.5: Model 3, Dependent Variable-NIM

Predictors	Coefficients	Std. Error	t-statistics	Collinearity Statistics	
				Tolerance	VIF
(Constant)	0.047	0.022	2.145***		
IITI	-0.045	0.025	-1.793	0.516	1.937
IITL	0.035	0.005	6.746*	0.292	3.425
IETD	-0.577	0.173	-3.337**	0.106	9.43
EPS	0.005	0.001	4.336*	0.618	1.618
CDR	0.059	0.008	7.508*	0.07	14.25
Model Summary	R^2: 0.968	Adjusted R^2:0.942	F-Value: 36.732*	P-Value: 0.000	DW: 1.219
Source: Authors' calculations *,**, *** indicate the significance at 1%, 5% and 10% level of significance respectively.					

Table 0.5 presents the regression analysis of third model in which net interest margin is considered as a dependent variable. In this model, it can be seen that Interest on loan, Interest expenses to deposit, EPS and Credit to deposit ratio has shown a significant relation with NIM. However, Interest expenses to deposit ratio shared negative significant relation

with NIM. The value of adjusted R^2 is 0.942, which means that approximately 94.2% of variation on NIM is explained by its independent variables. The P-Value from ANOVA table is less than 0.05, which shows a significant relation between the dependent and independent variables. Thus, the model III can summarily be presented as follows:

Model III: NIM=0.047+0.035IITL-0.577IETD+0.005EPS+0.059CDR

Hypothesis testing

In model I, out of five independent variables, the coefficient of EPS (0.87) was not significantly different form 0 (p-value<0.05). Thus, it can be stated that EPS does not have significant relation with ROA. Therefore, we do not reject the null hypothesis and state that EPS has no significant relation with the profitability of BNBL measured by ROA. For the remaining independent variables, since the p-values are less than 0.05, we reject the null hypothesis and state that Interest income to total income ratio, Interest on loan, Interest expenses to deposit ratio and Credit to deposit ratio have a significant relation with the profitability of BNBL measured by ROA. However, Interest income to total income has a negative bearing on ROA.

In model II, out of five independent variables, the coefficient of Interest expenses to deposit (0.196) and Credit to deposit ratio (0.64) were not significantly different from 0 (p-value<0.05). Thus, it can be stated that Interest expenses to deposit and Credit to deposit ratio do not have significant relation with ROE. Thus, we do not reject null hypothesis and state that Interest expenses to deposit and Credit to deposit ratio has no significant relation with the profitability of BNBL measured by ROE. For the remaining independent variables, since the significant values are less than 0.05, we do reject the null hypothesis and state that Interest income to total income ratio, Interest on loan and EPS have a significant relation with the profitability of BNBL, measured by ROE. However, Interest income to total income and Interest on loan has a negative bearing on ROE.

In model III, out of five independent variables, the coefficient of Interest income to total income (0.123) was not significantly different form 0 (p-value<0.05). Thus, it can be stated that Interest income to total income does not have significant relation with NIM. Thus, we do not reject null hypothesis and state that Interest income to total income has no significant relation with the profitability of BNBL measured by NIM. For the remaining independent variables, since the significant values are less than 0.05, we reject the null hypothesis and state that Interest expenses to deposit and Credit to deposit ratio, Interest on loan and EPS have a significant relation with the profitability of BNBL, measured by NIM. However, Interest expenses to deposit have a negative bearing on NIM.

Concluding Remarks

The economic performance of any country is partly determined by how its banking sector operates. The performance of banks is further determined by various variables which help in increasing the profitability of the bank. We tested three models for assessing the profitability of banks in Bhutan taking three dependent variables (ROA, ROE and NIM) and five independent variables (Interest income to total income, Interest on loan, Interest expenses to deposit, EPS and Credit to deposit ratio) using multivariate linear regression analysis.

The first model (taking ROA as dependent variable) met the 'BLUE' (Best Linear Unbiased Estimator) properties of multivariate regression analysis. This implies that the financial performance of Banks in Bhutan using ROA as a dependent variable and Interest income to

total income, Interest on loan, Interest expenses to deposit, EPS and Credit to deposit ratio as independent variables is found to be best model. However, other two models taking ROE and NIM as dependent variable are also statistically significant but, model I gives the best results. This finding is in line with that of Bhatia, Mahajan, & Chander (2012) and Samad, (2015). To check the problem of autocorrelation in residuals, Durbin Watson statistic was used. The value of this statistic is considered better when it is between 1.5-2.5 and in our study, the value of Durbin Watson statistic for the residuals of ROA model was 1.571. it indicates that there is no problem of auto correlation and model is best.

Therefore, it can be concluded that the key determinants of financial performance of Banks in Bhutan are Interest income to total income, Interest income to loans & advances, Interest expenses to total deposit and Credit to deposit ratio. The policy makers should have a monitoring of these variables in order to ensure the sound financial performance (measured by ROA) for the Banks in Bhutan.

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