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Comparative Financial Performance and Financial Soundness of Banks in Bhutan: Application of DuPont and Bankometer Models

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Abstract--- *In the land of Gross National Happiness and a developing country like Bhutan, banking system plays a robust role in ensuring sustainable and equitable economic development. Banks play asignificant role and have a direct brunt on economy in terms of return in the era of globalization. The performance of the financial sector over the period had improved with the continued expansion in its business. The credit growth accelerated over the years and the banks performance notably enhanced in terms of managing assets and increasing its returns. The banking sector expanded their branch network around the country, thereby increasing access to various financial services. The study aims to look at the financial performance of Bank of Bhutan Limited (BOB) and Tashi Bank (T-Bank) using DuPont Analysis and Financial Soundness of the banks being assessed through Bankometer model for a period of six years (2012-2017). Bankometer model is the outcome of IMF (2000) guidelines for evaluating the financial soundness of banks. The findings of the study reveal that both banks had ensured financial performance and financial soundness. The present study would helpthe shareholders, investors and managers for better financial decisions.*

Keywords--- *DuPont Model, Bankometer Model, ROE, ROA, S-Score*

I. INTRODUCTION

Bhutan is one of the developing countries across the globe. In the context of globalization there is a need to look how different sectors are performing in the country of Gross National Happiness. Bhutanese Banking Industry has direct impact on economy in terms of return on investment, decreasing non-performing assets, deregulation of interest rates, return on capital, and financial strength is an essential concern for developing country like Bhutan. The research takes into account the merit of banksthat leads to economic development. The present research looks to analyze the returns and financial soundness of BOB and T-Bank in terms of selected key ratios. DuPont model is used as a performance metric to analyze the returns and financial soundness is assessed by using Bankometer model. The proposed study is intended for a period of six years (2012-2017) as the annual report for the year 2018 is yet to be published.

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II. RESEARCH OBJECTIVES

The first intent of the present study is to analyze the returns of BOB and T-Bank using DuPont Model. Secondly, the study focuses on analyzing the strength of both banks.

III. LITERATURE REVIEW

There are several studies that used DuPont tool to gauge the financial returns, while the Bankometer model is used in assessing the financial soundness. The DuPont model was proposed by F. Donaldson Brown in 1918 to analyze financial performance of General Motors. In 1920, at DuPont Corporation, the model was used to value the financial assets.

Collier, McGowan& Muhammad(2010) used DuPont model in measuring the returns of AFFIN bank in Malaysia. The study revealed the shock on the banks return during financial crisis in Asia. In carrying out the performance of Jordanian Arab Bank, Almazari (2012) used DuPont tool to evaluate the essential elements that contribute to return on equity. The study revealed the healthy financial returns the bank. Ramesh (2015) studied the Return on Equity of Axis Bank, India and compared the same with ICICI, HDFC and SBI banks to measure the efficiency. Nimalathasan, Balaputhiran, and Priya (2012) evaluated the comparative analysis of state and public banks in Sri Lanka using DuPont model

A study conducted by Padake and Soni (2015) reported the importance of DuPont model in analyzing efficiency of banking sector. The study focused on measuring efficiency of top 12 banks of India and concluded that banks with more profit were not efficient in asset management. Bhagyalakshmi (2019) through DuPont analysis, there exists a positive relationship among all the variables of the model except equity multiplier.

The above literature suggests that DuPont Model is an efficient tool in gauging the financial returns of banks. Hence from these literatures following hypothesis are formulated in the study.

H_1: There is a significant difference in return on assets between BOB and T-Bank.

H_2: There is a significant difference in return on equity between BOB and T-Bank.

Nimalathasan et al. (2012) used Bankometer model for internal management and insolvency issues. Through these models the study recommends to improve certain financial ratios in order to compete with other banks in the competition. Shar and Jamali (2010) applied Bankometer model to predict financial distress of banks in Pakistan. The study concluded about the importance of capital adequacy for banks to be solvent.

In order to manage and control the efficient utilization of assets, the Bankometer tool being used (Kattel, 2014). Moreover, the calculation involved in Bankometer model is easy and can be used to determine the financial progress of banks by calculating a single index (Erari, Salim, Irdus, and Djumahir, 2013). According to Yameen and Ali (2016), the Bankometer model helps banks to gauge solvency problems with a proper control over their internal operations. Laila and Widihadnanto (2017) predicted the financial instability of banks in Indonesia using Bankometer model. The study looked into the capital performance of the banks and found to be insignificant.

Several other researchers have also used Bankometer model in order to assess financial soundness (Onyema, Okey, Precious, and Amadi, 2018;Budiman, Herwany, and Kristanti, 2017;Mittal and Mittal, 2017;Priyanka and Sheokand, 2017;Rahman, 2017; Shamnath and Rajgopal, 2016). Abirami (2018) used Bankometer tool to evaluate the strength

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of banks in Indian banking industry. The findings reveal that the solvency score of banks are found to be progressive indicating the financial soundness.

Ouma (2019) applied Bankometer model to study the strength of banks in Kenya and the study reported that both the banks were financially sound during the period of study. The study also concluded that banks are financially sound.

From the above literature, for comparative analysis of banks on financial soundness one can use Bankometer model. Thus the third hypothesis is formulated in the study.

H_3: There is a significant difference in the solvency score of BOB and T-Bank is formulated in the study.

The review of literature is obvious of scant scholarly research articles on financial returns and financial strength from the perspective of Bhutan. Hence the present study uses DuPont and Bankometer models as supported by the literature review.

IV. RESEARCH METHODOLOGY

4.1 Framework of DuPont Tool

DuPont Model developed by F. Donaldson Brown, is used to study financial performance of firms since 1920's. The model uses net profit margin to measure operational efficiency, total asset turnover to measure the efficient utilization of assets and equity multiplier to gauge the financial returns.

4.2 Bankometer Model and the frame work

Bankometer model is a recent innovation that uses CAMELS framework (Rahman, 2017). The financial strength is determined by a solvency score, so as to determine the insolvency issues and try to get rid of the drawbacks indicated by Bankometertool.

The equation of the Bankometer model is described as follows:

$S = 1.5\ X1+1.2\ X2+3.5X3+0.6X4+0.3X5+0.4X6$

Table 3.2: Bankometer Variables

	Variables	Permissible values
X1	Capital to Assets Ratio	≥ 4%
X2	Equity to Total Assets Ratio	≥ 2%
X3	Capital Adequacy Ratio(CAR)	40% ≤ CAR ≥ 8%
X4	Non-performing Loans to Loans Ratio	≤15%
X5	Cost to Income Ratio	≤40%
X6	Loans to Assets Ratio	≤65%

Source: Shar, A.H., Shah, M.A., and Jamali, H (2010)

Here the dependent variable is the solvency score (S) and the independent variables are shown in Table 3.2.

The variable X1 explains how assets of banks are managed. If the ratio is greater than or equal to 4% it indicates banks are safe because assets are bought by long-term borrowings. The variable X2 denotes equity to asset ratio which measures the bank assets as to what proportion being financed by equity. If this ratio is greater than or equal to 2% indicates more of equity financing. The variable X3 denotes capital adequacy ratio which signifies the strength of the financial institutions. If this ratio is greater than or equal to 8% then it is able to face the

unanticipated shocks in their balance sheet. The variable X4 denotes non-performing loan ratio indicating to what extent the loans are classified as non-performing out of the total loans. The ratio should be within the prescribed limits of less than or equal to 15%. A higher ratio exceeding this percentage is indicative of increase in non-performing loans. The variable X5 denotes the ratio of operating expenses to the total income excluding non-cash expenses. A ratio of less than or equal to 40% is acceptable. The variable X6 denotes loan to asset ratio measuring earnings or liquidity of banks based on positive or negative impact. A ratio of less than or equal to 65% is acceptable.

Predicting banks financial instabilityis aserious concern for creditors and investors. This model helps banks to predict its financial instability. The Table 3.3 shows the criteria for financial soundness of banks.

Table 3.3: Criteria for Financial Soundness Indicators

Criteria	Financial Soundness Indicators
S >70	Healthy Zone (solvent)
S >50 and <50	Gray Zone (between solvent and insolvent)
S <50	Distress Zone (insolvent)

Source: IMF Report (2000)

Data Analysis

The results of the models are explained using key financial ratios mentioned below:

Table 4.1: DuPont 5-Step Model

BOB						
Year	Tax Burden	Interest Burden	EBIT Margin	ATO	EM	ROE (%)
2012	0.695	0.668	1.497	0.032	9.234	20.61
2013	0.703	0.610	1.640	0.031	7.852	17.29
2014	0.636	0.578	1.731	0.030	9.208	17.43
2015	0.704	0.543	1.840	0.030	8.225	17.39
2016	0.697	0.547	1.827	0.030	8.131	16.96
2017	0.695	0.453	2.205	0.020	8.668	12.02
T-Bank						
Year	Tax Burden	Interest Burden	EBIT Margin	ATO	EM	ROE (%)
2012	0.700	0.285	3.507	0.013	14.348	13.26
2013	0.700	0.146	6.838	0.006	11.110	5.04
2014	0.840	0.157	6.367	0.007	11.618	7.10
2015	0.836	0.176	5.683	0.010	10.709	8.69
2016	0.660	0.248	4.030	0.014	12.056	10.77
2017	0.695	0.372	2.689	0.024	12.846	21.37

Source: Authors' Analysis

Table 4.1 depicts the parameters of DuPont model for BOB and T-Bank for the intended period of 6 years between 2012 and 2017. The figure 4.1 and 4.2 bring a comparative analysis of ROA and ROE.

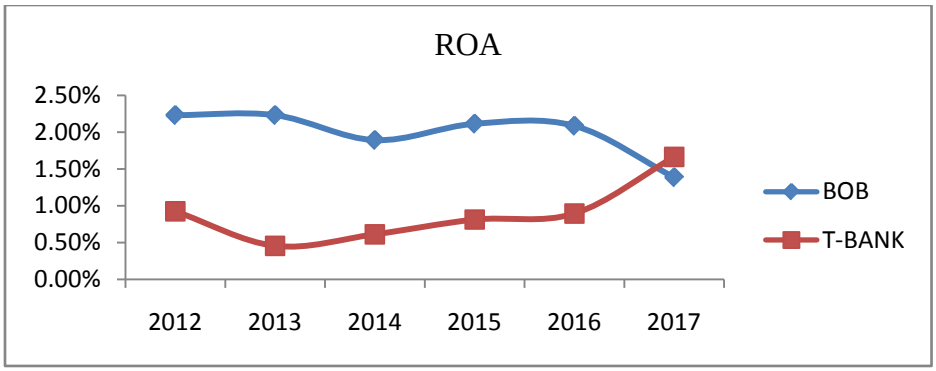

Fig 4.1: Comparison of ROA

Source: Authors' Analysis

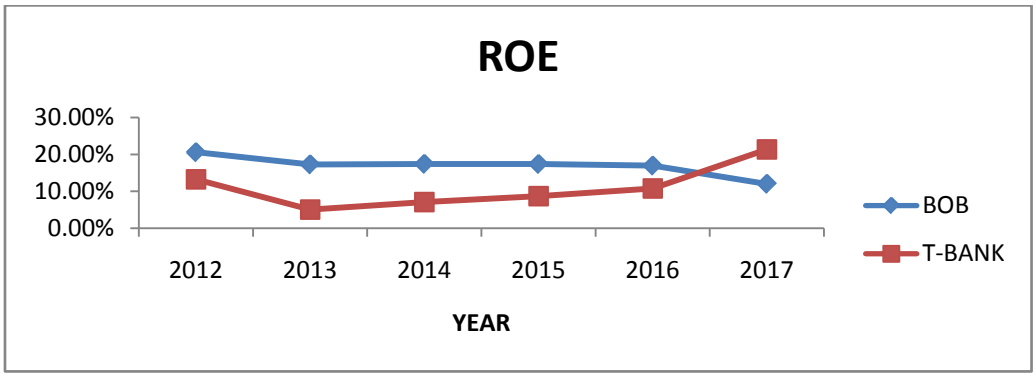

Fig 4.2: Comparison of ROE

Source: Authors' Analysis

Table 4.2 Group Statistics: BOB Vs T-Bank

	Name of the Bank	N	Mean	Std. Deviation	Std. Error Mean
ROA	BOB	6	1.99	0.32	0.13
	T-Bank	6	0.89	0.42	0.17
ROE	BOB	6	16.95	2.77	1.13
	T-Bank	6	11.04	5.81	2.37

From the tables 4.1 and 4.2, a comparison of mean of ROA and ROE between BOB, and T-Bank in Bhutan are shown. The mean ROA (M=1.99%) of BOB is higher than T-Bank (0.89%). Also ROE of BOB (16.95%) is higher than T-Bank (11.04%). To find the significance of the results, an independent sample *t* test is conducted and the results are shown below.

The results of Levene's test, F(10)=0.05, p=0.82, indicate that the variances of the two banks are assumed to be equal. Thus, the standard *t* test results were used. The results of the independent *t* test reported significantly with higher levels of Return on Assets BOB (M=1.99, SD=0.32, n=6) than T-Bank (M=0.89, SD=0.42, n=6), t(10)=5.13, p=0.000. Therefore the hypothesis H1 is accepted. This indicates that BOB used its assets efficiently when compared to T-Bank.

The results of Levene's test, F(10)=2.26, p=0.16, indicate that the variances of the two banks are assumed to be equal. Thus, the standard *t* test results were used. The results of the independent *t* test were reported

significantly higher levels of Return on Equity for BOB (M=16.95, SD=2.77, n=6) than T-Bank (M=11.04, SD=5.81, n=6), t(10)=0.16, p=0.048. Hence the hypothesis H2 is accepted. This indicates that BOB could increase high returns available to equity shareholders.

Table 4.3: Bankometer S-Score Model

BOB							
Year	X_1	X_2	X_3	X_4	X_5	X_6	S-Score
2012	11.12	3.47	16.00	3.90	27.67	60.54	111.70
2013	12.74	4.90	15.29	6.88	36.74	58.57	117.08
2014	10.82	3.77	15.57	4.96	32.81	48.43	107.44
2015	12.16	3.83	15.65	4.33	33.31	50.88	110.55
2016	12.30	6.70	23.54	4.45	30.34	48.05	139.87
2017	11.54	5.87	17.40	3.16	45.86	53.22	122.20
T-Bank							
Year	X_1	X_2	X_3	X_4	X_5	X_6	S-Score
2012	6.97	5.50	13.20	6.44	34.38	57.50	100.44
2013	9.00	7.22	15.45	6.88	42.05	53.55	114.40
2014	8.61	6.38	17.29	7.22	34.82	47.66	114.92
2015	9.34	6.46	19.79	7.69	35.29	47.88	125.37
2016	8.29	5.35	14.54	6.24	45.97	64.55	113.10
2017	7.78	4.17	12.50	6.44	36.74	69.01	102.92

Source: Authors' Analysis

Table 4.3 depicts the parameters of Bankometer model for BOB and T-Bank for the intended period of 6 years between 2012 and 2017. The figure 4.3 compares the solvency scores of the banks.

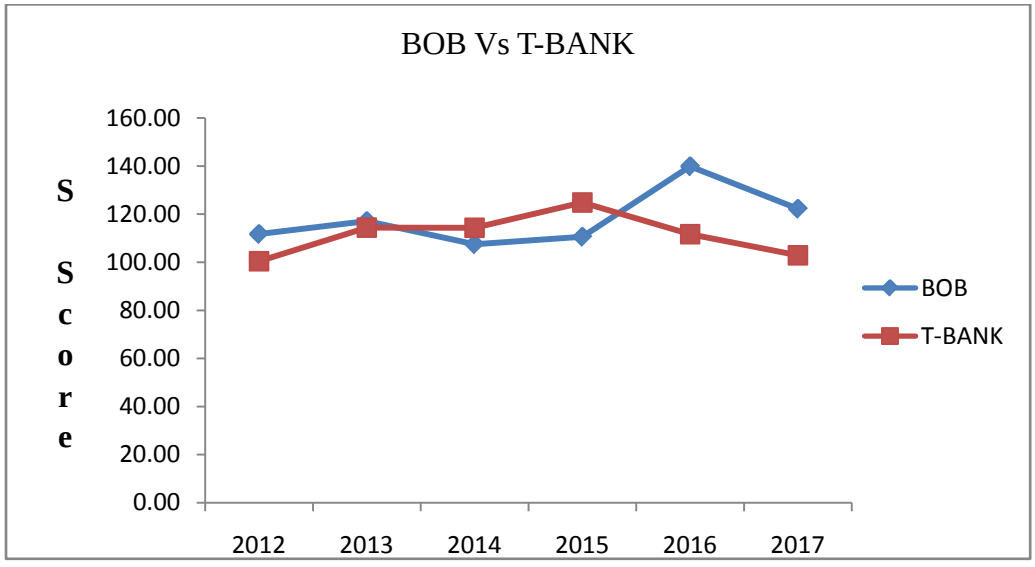

Fig 4.3: Comparison of Solvency Score

Source: Authors' Analysis

Table 4.4: Group Statistics: BOB Vs T-Bank

	Name of the Bank	N	Mean	Std. Deviation	Std. Error Mean
Solvency Score	BOB	6	118.14	11.86	4.84
	T-Bank	6	111.44	8.84	3.61

Source: Authors' Analysis

From the table 4.4, a comparison of mean of the solvency score (S-Score) between BOB and T-Bank is shown. The mean solvency score of BOB (M=118.14%) which is higher than the T-Bank (111.44%). To find the significance of the results, an independent sample t test is conducted. The results of Levene's test, F(10)=0.33, p=0.58, indicate that the variances of the two banks are assumed to be equal and the standard t test results were used. The independent t test reports that there is nosignificant difference in the solvency scores between BOB (M=118.14%, SD=11.86) and T-Bank (M=111.44%, SD=8.84), t(10)=1.11, p=0.293. Hence the hypothesis H_3 not accepted. This indicates that both the banks are financially sound.

V. CONCLUSION

In a global competitive environment, individual banks financial performance is crucial in maintaining customers for building sustainable financial system and country's economic growth. The study examined the comparative financial performance and financial soundness of the BOB and T-Bank. The results from Bankometer model indicate that banks are financially sound. The higher ROA of BOB signals an upward profit trend. The result from the study shows that one Ngultrum of BOB investment in Assets produced 1.99% of net income whereas T-Bank produced only 0.89%. ROE is a significant indicator for investors as it shows the efficiency of banks in utilizing equity investments to generate net income. The results from the study show that BOB generates 16.95% return on shareholders' investment while T-Bank generates 11.04%. Hence the study concludes that by using DuPont Model, BOB shows higher degree of profitability in comparison to T-Bank.

5.1 Managerial implications

It is hopeful that the present study can be useful for shareholders, managers and investors of the banks while taking financial decisions. The relevant agencies are advised to conduct similar studies in future so as to identify the trend in the context of the present study. This study can be enhanced and compared in the future with other predictive models.

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