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Efficiency and Profitability: A Case Study of Banking Sector in Sri Lanka

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Keywords : *efficiency, profitability, banking sectors.*

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Keywords: efficiency, profitability, banking sectors.

1. INTRODUCTION

Efficiency in general, describes the extent to which time, effort or cost is well used for the intended task or purpose. It is often used with the specific purpose of relaying the capability of a specific application of effort to produce a specific outcome effectively with a minimum amount or quantity of waste, expense, or unnecessary effort. "Efficiency" has widely varying meanings in different disciplines.

The term "efficient" is very much confused and misused with the term "effective". In general, efficiency is a measurable concept, quantitatively determined by the ratio of output to input. In several of these cases, efficiency can be expressed as a result as percentage of what ideally could be expected, hence with 100% as ideal case. This does not always apply, not even in all cases where efficiency can be assigned a numerical value.

A simple way of distinguishing between efficiency is the saying, "Efficiency is doing things right".

This is based on the premise that selection of objectives of a process is just as important as the quality of that process. High efficiency is good for economy and the environment. High efficiency is in line with core business electricity industry. The efficiency of Power Plants has been improved and will be improved continuously.

Organizational efficiency is the organization's ability to implement its plans using the smallest possible expenditure of resources. It is an important factor in the firm's organizational effectiveness, this being the ease and degree of success with which the organization is able to accomplish its aims. Organizational efficiency is the organization's degree of success in using the least possible inputs in order to produce the highest possible outputs. Factors that influence the efficiency of the organization's use of its resources can be both internal and external to the organization.

The recording of profitability for the past period or projecting profitability for the coming period, measuring profitability is the most important measure of the success of the business. A business that is not profitable cannot survive. Conversely, a business that is highly profitable has the ability to reward its owners with a large return on their investment. Increasing profitability is one of the most important tasks of the business managers. Managers constantly look for ways to change the business to improve profitability.

Banking is now an essential part of our economic system. Although banks create no new wealth but their borrowing, lending and related activities facilitate the process of production, distribution, exchange and consumption of wealth. In this way they become very effective partners in the process of economic development. Today modern banks are very useful for the utilization of the resources of the country. Efficiency is defined as "achieving a goal with as little time, effort and energy as possible." This is a simple definition with significant meaning. Efficiency means, greatest human satisfaction from scarce resources. The efficiency of markets has proven a powerful force in altering historical perspectives on effective ways humans can interact.

Allocative efficiency resources are dedicated to the combination of goods and services that best satisfy consumer wants. Production Efficiency goods and services are produced using the least cost combination of resources and technology. Dynamic Efficiency how

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the economy over time promotes allocate and productive efficiency

The efficiency of markets has proven a powerful force in altering historical perspectives on effective ways humans can interact. The revolutionary idea that the pursuit of self-interest, tempered by competition, promotes social interest is the basis for the tremendous economic growth.

Profitability is the primary goal of all business ventures. Without profitability the business will not survive in the long run. So measuring current and past profitability and projecting future profitability is very important. At the same time bankers play very important role in the economic life of the nation. The health of the economy is closely related to the soundness of its banking system.

II. RESEARCH QUESTIONS

Specifically, this study is undertaken to explore the answers to the following research questions (RQ):

RQ1: Is there any association between efficiency and Profitability?

RQ2: Does Efficiency have any impact on Profitability?

RQ3: What are the constraints faced by banking sectors in the study area?

III. OBJECTIVES

The main objective of the study is to find out the impact of efficiency and profitability of banking sector in Sri Lanka.

The following sub objectives are considered for the above purpose.

- To identify the factors which are significantly contribute to the efficiency and profitability
- To find out the relationship between efficiency and profitability.
- To suggest some measures to enhance the profitability of banking sector in Sri Lanka.

IV. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Velnampy (2013) revealed that corporate governance and firm performance. The samples of 28 manufacturing companies using the data representing the periods of 2007 – 2011 found that determinants of corporate governance are not correlated to the performance measures of the organization. Regression model showed that corporate governance don't affect companies' ROE and ROA. Finally that corporate governance measures are not correlated with performance measures. Another study of Velnampy and Pratheepkanth(2013) indicates that the impact of corporate structure on ROE and ROA is higher than the board structure while the impact of board structure on net profit is higher than the corporate reporting. Further the study found a positive relationship between the

variables of corporate governance and firm's performance.

Chisti Khalid Ashraf (2012) pointed out working capital management has its effect on liquidity as well on profitability of the firm. In this paper a sample of the 16 Indian firms, listed on BSE including firms from different sectors of economy for a period of 2006 to 2011 has been taken. An attempt has been made to examine the effect of different variables of working capital management including the Debt ratio, Average collection period, Inventory turnover in days, Average payment period, Cash conversion cycle and Current ratio on the Net operating profitability of sample firms. Descriptive and Regression are used for analysis. The results show that there is a strong negative relationship between variables of the working capital management and profitability of the firm except the sales (Size of the company). Then found that there is a positive relationship between size of the firm and its profitability. There is also a significant negative relationship between debt used by the firm and its profitability.

Nor Hayati Ahmad, Mohamad Akbar Noor Mohamad Noor (2011) the paper investigated the efficiency of the 78 Islamic banks in 25 countries for the period of 1992-2009. Islamic banks products are compliance with the Islamic laws (syaria') that forbids the giving or receiving of riba'1. The efficiency estimates of individual banks are evaluated using the non-parametric Data Envelopment Analysis (DEA) method. The empirical findings seem to suggest that the World Islamic banks have exhibited high pure technical efficiency. A multivariate analysis based on the Tobit model reinforces these findings and significantly associated with operating expenses against asset, size, equity, NPL, Asia Financial Crisis and national income level (GDP). We also find positive correlation between bank profitability and technical efficiency levels, indicating that the more efficient banks tend to be more profitable with strong result at Asian Islamic banks. The Fixed Effect Model (FEM) that been used to analyze profitability proposed that profit efficiency is positive and statistically significant with operating expenses against asset, equity, high income countries and non performing loans against total loans. Interestingly, the empirical results show that more profitable banks are those that have higher operating expenses against asset, more equity against asset and concentrated at high income countries demonstrating close relationship between monetary factors in determining Islamic banks profitability.

Velnampy and Nimalathan (2009) investigated the association between organizational growth and profitability of Commercial bank Ltd in Sri Lanka over the period of 10 years from 1997 to 2006. The researchers found, sales are positively associated with profitability ratios except operating profit, return on equity and number of depositors are negatively

correlated to the profitability ratios except operating profit and return on equity. At the same time, number of advances is also negatively correlated to the return on average shareholders' funds.

Ben Naceur and Omran (2008) examined the influence of bank regulations, concentration, financial and institutional development on Middle East and North Africa (MENA) countries commercial banks' margin and profitability during the period 1989–2005. Find that bank-specific characteristics, in particular bank capitalization and credit risk, have positive and significant impact on banks' net interest margin, cost efficiency and profitability. On the other hand, macroeconomic and financial development indicators have no significant impact on bank performance. More recently, Sufian and Habibullah (2009) examined the determinants of the profitability of the Chinese banking sector during the post-reform period of 2000–2005. The empirical findings suggest that all the determinant variables have statistically significant impact on China banks profitability.

Sufian, Noor, and Abdul, (2008) examined the efficiency of the Malaysian Islamic banking sector during the period 2001–2006 by using the non-parametric Data Envelopment Analysis (DEA) method. Pure technical inefficiency outweighs scale inefficiency in the Islamic banking sector implying that the Islamic banks have been managerially inefficient in exploiting their resources to the fullest extent. The empirical findings seem to suggest that the MENA Islamic banks have exhibited higher technical efficiency compared to their Asian Islamic banks counterparts. During the period of study he found that pure technical inefficiency has greater influence in determining the total technical inefficiency of the MENA and the Asian Islamic banking sectors.

Osman Furkan Abbasoglu and Ahmet Faruk Aysan and Ali Gunes (2007) analyzed that after 2001 crisis, the macroeconomic environment led to important changes in Turkish banking sector which has experienced a process of concentration by involving in merger and acquisition activities and liquidation of some insolvent banks. Using the data from the detailed balance sheets of the banks that operated in the years from 2001 to 2005, examine the degree of concentration and degree of competition in the market by applying Panzar and Rosse's approach. Explore the existence of relationship between efficiency and profitability of the banks taking into account the internationalization of banking. The results do not suggest the existence of relationship between concentration and competition. There is also no healthy relationship between efficiency and profitability.

Velnampy (2006) examined the financial position of the companies and the relationship between financial position and profitability with the sample of 25 public quoted companies in Sri Lanka by using the Altman Original Bankruptcy Forecasting Model. Finding

suggests that, out of 25 companies only 4 companies are in the condition of going to bankrupt in the near future. Additionally, earning/total assets ratio, market value of total equity/book value of debt ratio and sales/total assets in times are the most significant ratios in determining the financial position of that quoted companies.

Velnampy (2005) in his study of investment appraisal and profitability of toddy bottling project in Sri Lanka found that, the management of the project failed to achieve the budgetary results. Even though, the Net Present Value (NPV), Internal Rate of Return (IRR) and benefit cost ratio shows the project as worthwhile.

Turati (2003) revealed that computes simple correlation coefficients between efficiency scores and different measures of bank profitability. According to this study, correlation coefficients between ROE and efficiency scores and between ROA and efficiency scores are substantially close to zero for all the three models. These findings suggest that there is no linear relationship between profitability and efficiency. There also observed that for some European countries there is a negative correlation between efficiency and profitability. Here interpreted this as a surprising result since the more inefficient banks were also the more profitable ones. Berger and Hannan (1998) stated that monopolists earned higher profits and given the absence of competitive pressures, were also characterized by a higher level of inefficiency.

Friedrich Schneider Werner Lenzelbauer (1993), pointed the relationships between profitability and firm size, and efficiency and firm size, based on firms in Upper Austria. Considerable evidence suggesting that the average profitability of small enterprises exceeds that of large firms, however, productivity tends to be positively related to firm size.

Friedrich Schneider (1993), in this paper revealed that the performance of Upper- Austrian firms by size class. Considering the six derived hypotheses, on average the gross residual quota (profitability measures) of small firms is higher than the one of medium-sized and large firms. However, a similar result could not be found for the productivity development. The result is obtained indicating the larger the firm, the higher is the productivity. The smaller the firm the lower the labor cost per employee.

From the literature review the following hypotheses are developed for the study purpose.

H1: There is an impact of efficiency on Profitability

H2: There is a significance relationship between Efficiency and Profitability

V. CONCEPTUAL FRAME WORK

Based on the literatures, the following conceptual frame work is formulated.

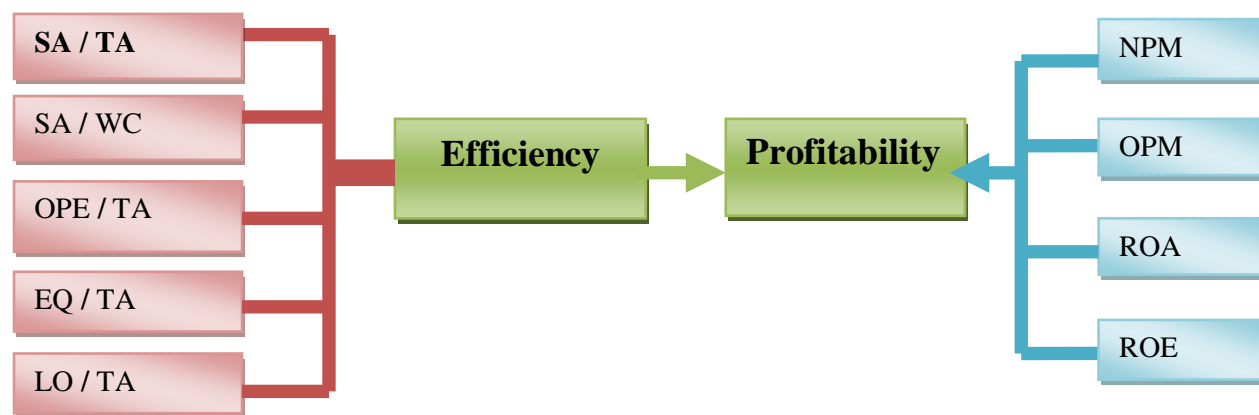


Figure 1: Conceptual Framework

Where:

SA / TA : Sales to Total Assets
 SA / WC : Sales to Working Capital
 OPE / TA : Operating Expenses to Total Assets
 EQ / TA : Equity to Total Assets
 LO / TA : Loans to Total Assets
 NPM : Net profit Margin
 OPM : Operating profit Margin
 ROA : Return on Assets
 ROE : Return on Equity

VI. METHODOLOGY

It describes research design, sampling design, data sources, reliability and validity of data and mode of analysis.

VII. RESEARCH DESIGN

This research will be an explanatory studies. The emphasis here is on studying a situation or a problem in order to explain the relationship between variables (i.e., Efficiency and Profitability)

VIII. SAMPLING DESIGN

The sample of this study composed of banking sector in Sri Lanka for the period of 2008-2012. The scope of the study is Banking Sector in Sri Lanka.

Efficiency Ratios and Its Calculations

Sales to Total Assets $\text{Sales} / \text{Total Assets} \times 100$

Sales to Working Capital $\text{Sales} / \text{Working capital} \times 100$

Operating Expenses to Total Assets $\text{Operating Expenses} / \text{Total Assets} \times 100$

Equity to Total Assets $\text{Equity} / \text{Total Assets} \times 100$

Loans to Total Assets $\text{Loans} / \text{Total Assets} \times 100$

Profitability Ratios and Its Calculations

Net Profit Margin

IX. OPERATING PROFIT MARGIN

Return on Asset Profit after interest & tax / Total assets X 100

Return on Equity Profit after interest & tax / Equity capital X 100

X. DATA SOURCES

The research is totally based on secondary data, from the annual reports of sample companies. In some cases, some data and information have been collected from the websites of the sampled firms, different articles and papers.

XI. VARIABLES IN THE STUDY

Table 1 : Calculations of Efficiency and Profitability Ratios

Efficiency Ratios and Its Calculations	
Sales to Total Assets	Sales / Total Assets ×100
Sales to Working Capital	Sales / Working capital X 100
Operating Expenses to Total Assets	Operating Expenses / Total Assets les X 100
Equity to Total Assets	Equity / Total Assets X100
Loans to Total Assets	Loans / Total Assets X100
Profitability Ratios and Its Calculations	
Net Profit Margin	$\frac{\text{Net profit}}{\text{Sales}} * 100$
Operating Profit Margin	$\frac{\text{Netprofit before interest and tax}}{\text{Sales}} * 100$
Return on Asset	Profit after interest & tax /Total assets X 100
Return on Equity	Profit after interest & tax /Equity capital X 100

XII. RELIABILITY AND VALIDITY OF THE DATA

Reliability will be established with an overall Cronbach's alpha and other techniques. It will be compared our reliability value with the standard value alpha of 0.7 advocated by Cronbach (1951), a more accurate recommendation (Nunnally& Bernstein's, 1994) or with the standard value of 0.6 as recommended by Bagozzi& Yi's (1988). Secondary data for the study were drawn from audit accounts (i.e., income statement and balance sheet) of the concerned companies; therefore, these data may be considered reliable for the purpose of the study. Necessary checking and cross checking were done while scanning information and data from the secondary sources. All these efforts were made in order to generate validity data for the present study. Hence researcher satisfied content validity.

XIII. MODE OF ANALYSIS

Correlation analysis and multiple regression analysis were performed to investigate the relationship between efficiency and profitability and the impact of efficiency on profitability respectively.

XIV. RESEARCH MODEL

It is important to note that the financial profitability (NPM, OPM, ROA and ROE) depend upon Sales to Total Assets (SA/TA), Sales to Working Capital (SA/WC), Operating Expenses to Total Assets (OPE/TA), Equity to Total Assets (EQ/TA), and Loans to Total Assets (LO/TA).

The following four models are formulated and presented here:

$$\text{NPM} = \beta_0 + \beta_1 \text{SA/TA} + \beta_2 \text{SA/WC} + \beta_3 \text{OPE/TA} + \beta_4 \text{OPE/TA} + \beta_5 \text{LO/TA} + \epsilon \dots \dots \dots (1)$$

$$\text{OPM} = \beta_0 + \beta_1 \text{SA/TA} + \beta_2 \text{SA/WC} + \beta_3 \text{OPE/TA} + \beta_4 \text{OPE/TA} + \beta_5 \text{LO/TA} + \epsilon \dots \dots \dots (2)$$

$$\text{ROA} = \beta_0 + \beta_1 \text{SA/TA} + \beta_2 \text{SA/WC} + \beta_3 \text{OPE/TA} + \beta_4 \text{OPE/TA} + \beta_5 \text{LO/TA} + \epsilon \dots \dots \dots (3)$$

$$\text{ROE} = \beta_0 + \beta_1 \text{SA/TA} + \beta_2 \text{SA/WC} + \beta_3 \text{OPE/TA} + \beta_4 \text{OPE/TA} + \beta_5 \text{LO/TA} + \epsilon \dots \dots \dots (4)$$

Where, α , is constant, β_1 , β_2 , β_3 β_4 and β_5 are coefficients of variables, ϵ , is error term.

XV. DATA ANALYSIS AND DISCUSSION

a) Multi-Co linearity

Two major methods were used in order to determine the presence of multi-co linearity among independent variables in this study. These methodologies involved calculation of a Tolerance test and variance inflation factor (VIF) (Ahsan, Abdullah, Gunfie, & Alam,2009).The results of theses analysis are presented in table 2. Test of Co linearity.

Table 2 : Test of Co linearity

Variable	Tolerance	VIF
Sales to Total Assets	.854	9.457
Sales to Working Capital	.624	5.156
Operating Expenses to Total Assets	.125	3.568
Equity to Total Assets	.278	7.658
Loans to Total Assets	.568	4.369

According to the table-2. Test of Co linearity, none of the tolerance level is < or equal to 1; and also VIF values are perfectly below 10. Thus the measures

selected for assessing independent variable in this study do not reach levels indicate of multi-co linearity.

Table 3 : Correlation Metrics

Variables	SA/TA	SA/WC	OPE/TA	EQ/TA	LO/TA	NPM	OPM	ROA	ROE
SA/TA	1								
SA/WC	.048 (.928)	1							
OPE/TA	.749 (.086)	.551 (.257)	1						
EQ/TA	-.534 (.275)	.000 (1.000)	-.061 (.908)	1					
LO/TA	.960** (.002)	.012 (.982)	.711 (.113)	-.444 (.377)	1				
NPM	.889* (.018)	.338 (.512)	.808* (.052)	-.597 (.211)	.795* (.059)	1			
OPM	-.931** (.007)	.042 (.937)	-.738 (.094)	.278 (.594)	-.883* (.020)	-.723 (.105)	1		
ROA	.348 .499	.876* (.022)	.700 (.122)	-.059 (.912)	.341 (.508)	.435 .388	-.335 .516	1	
ROE	.921** (.009)	.391 (.444)	.877* (.022)	-.490 (.324)	.825* (.043)	.939** (.005)	-.853* (.031)	.608 (.200)	1

It is found that from table-3 describes the correlation between efficiency and profitability. Which indicates that SA/TA is significantly correlated with OPM and ROE 1 percent level of significance. At the same time SA/TA and OPE/TA and LO/TA are significantly correlated with NPM at 5 percent level of significance.

Then indicates that LO/TA is significantly correlated with OPM and ROE 5 percent level of significance. At the same time OPE/TA also is significantly correlated with ROE at 5 percent level of significance.

Finally the rest of other variables are not correlated. Then a multiple regression analysis was performed to identify the predictors of profitability variables as conceptualized in the models. A enter variable selection was used in the regression analysis and Table-4 provides the summary measure of the models.

Table 4 : Predictor of Profitability

Details	NPM	OPM	ROA	ROE
SA/TA	1.125 (.463)	-8.218 (.077)	-.080 (.949)	7.947 (.080)
SA/WC	.594 (.659)	5.962 (.106)	1.565 (.362)	3.938 (.158)
OPE/TA	-.023 (.985)	-1.096 (.471)	-.028 (.982)	1.203 (.442)
EQ/TA	-.024 (.985)	.104 (.934)	-.332 (.796)	-3.331 (.186)
LO/TA	-.502 (.704)	7.619 (.083)	.341 (.791)	-3.933 (.158)
P Value	(.230)	(.052)	(.226)	(.042)
R	.991	1.000	.991	1.000
R ²	.981	.999	.982	.999
Adjusted R ²	.887	.994	.892	.996
Standard Error	.44405	.18342	.68731	.11242
F Value	10.460	211.711	10.919	329.333

From the table-4; it is seen that the specification of the five predictor variables (SA/TA, SA/WC, OPE/TA, EQ/TA and LO/TA) in the above model reveals that the ability to predict the profitability. (R2 = .981, .999, .982 and .999 respectively).

R2value of .981 which is in the model 1 denotes that 98.1 % of observed variability in NPM can be explained by the differences in the independent variables. Remaining 2.9 % variance in the net profit margin is attributed to other variables.

In this model 2, R2 value of 0.999 which is denotes 99.9 % of observed variability in operating profit margin can be explained by the differences in the independent variables. Remaining 0.1% variance in the OPM is attributed to other variables.

In this model 3, R2 value of 0.982 which is denotes 98.2 % of observed variability in ROA can be explained by the differences in the independent variables. Remaining 1.8% variance in the return on assets is attributed to other variables.

In this model 4, R2 value of 0.999 which is denotes 99.9 % of observed variability in ROE can be explained by the differences in the independent variables. Remaining 0.1% variance in the return on equity is attributed to other variables.

In this models summary, the value of an adjusted R2 887, .994, .892 and .996, slightly less than the value of adjusted R2.

An examination of the model summary in conjunction with ANOVA (F-value) indicates that the model explains the most possible combination of predictor variables that could contribute to the relationship with the dependent variables.

XVI. HYPOTHESIS TESTING

Serial No	Hypothesis	Tools	Accepted/Rejected
H ₁	There is an impact of efficiency on Profitability	Regression	Partially Accepted
H ₂	There is a significance relationship between Efficiency and Profitability	Correlation	Partially Accepted

XVII. CONCLUSION

The researcher identified that efficiency and profitability are significantly correlated. At the same time sales, loans, operating expenses are directly linked with net profit and operating profit. Efficiency Planning and Management guide focuses on reducing costs. Efficiency measures on improving the competitiveness of the organizations. The strengthening of internal efficiency management should be the first goal of promotion in industry. Improving efficiency can be a highly creative and satisfying process. Efficiency of the breeding group is in large part driven by management. The promotion of sustainable efficiency development and profitability use is likely to become an increasingly important policy issue as policy and lawmakers from industrialized and developing countries address and incorporate environmental concerns into their decision making. Basic efficiency management laws should adopt policies and create the principal legal foundation for government intervention aimed at efficiency strength of economic activity. Efficiency conservation legislation should ideally result from a participatory decision making process, necessary for development.

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