

Impact of Bank Size on Bank Profitability: Using Four Licensed Commercial Banks in Sri Lanka

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Introduction

The banking sector, in all countries, has an important effect on economic measures due to the essential role played by banks for improvements in overall economic activity necessary for economic growth (Monnin and Jokipii 2010). Today, the sector is moving towards integrated financial services. One of the main goals of a bank is to make profits. Only a profitable banking sector can contribute to the stability of the financial system. As such, an understanding of factors that affect bank profitability is very important for banks themselves. In the existing literature, bank size has been considered as a fundamental variable in explaining bank profitability by various researchers. Size of a business means the ability it possesses and the variety and production capacity or the quantity and multiplicity of services the business can be offer to its customers.

Previous studies examining this relationship have yielded mixed results. Correlation analysis of Velnampy and Nimalathan (2010) showed a positive relationship between bank size and profitability in Commercial Bank of Ceylon Ltd, but there is no relationship between bank size and profitability in Bank of Ceylon. Aladwan (2015), Ani et al. (2012) and Sufian and Habibullah (2009) have found a negative relationship. Therefore, it is very essential to address the following research question which is “What is the impact of bank size on bank profitability in Sri Lanka?” Given this background, the present study investigates the impact of bank size on bank profitability in Sri Lanka, using four LCBs namely Bank of Ceylon, Peoples Bank, Sampath Bank and Hatton National Bank over the period 1998 to 2017.

Objectives

Main objectives of this study are to: identify the impact of bank size on its profitability in Sri Lanka for the selected LCBs; identify alternative measures of bank size and bank profitability as well as alternative model specifications; identify the impact of bank size on bank profitability separately for the four banks.

Methodology

The study employed secondary data drawn from Annual Reports of four Licensed Commercial Banks over the period 1998 to 2017. Variables were tested by developing six models. Panel regression and OLS method were employed to obtain the results. The following regression models were developed based on the variables in the study. The empirical models used in this study for panel data is given as,

$$\text{Model I : } ROA_{it} = \beta_0 + \beta_1 \text{Size_TA}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{LIQ}_{it} + \beta_4 \text{CA}_{it} + \varepsilon_{it}$$

$$\text{Model II : } ROA_{it} = \beta_0 + \beta_1 \text{Size_NOE}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{LIQ}_{it} + \beta_4 \text{CA}_{it} + \varepsilon_{it}$$

$$\text{Model III : } ROA_{it} = \beta_0 + \beta_1 \text{Size_NOB}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{LIQ}_{it} + \beta_4 \text{CA}_{it} + \varepsilon_{it}$$

$$\text{Model IV : } ROE_{it} = \beta_0 + \beta_1 \text{Size_TA}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{LIQ}_{it} + \beta_4 \text{CA}_{it} + \varepsilon_{it}$$

$$\text{Model V : } ROE_{it} = \beta_0 + \beta_1 \text{Size_NOE}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{LIQ}_{it} + \beta_4 \text{CA}_{it} + \varepsilon_{it}$$

$$\text{Model VI : } ROE_{it} = \beta_0 + \beta_1 \text{Size_NOB}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{LIQ}_{it} + \beta_4 \text{CA}_{it} + \varepsilon_{it}$$

$$i = 1, 2, 3, 4; \quad t = 1998 - 2017$$

1= Bank of Ceylon; 2= People's Bank; 3= Sampath Bank; 4= Hatton National Bank

Where, ROA is Return on Assets; ROE is Return on Equity; Size_TA is Total Assets, Size_NOE is Number of Employees; Size_NOB is Number of Branches; LEV is Leverage; LIQ is Liquidity; and CA is Capital Adequacy.

The following three models were used separately for each bank.

$$\text{Model I : } ROA_{it} = \beta_0 + \beta_1 \text{Size_TA}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{LIQ}_{it} + \beta_4 \text{CA}_{it} + \varepsilon_{it}$$

$$\text{Model II : } ROA_{it} = \beta_0 + \beta_1 \text{Size_NOE}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{LIQ}_{it} + \beta_4 \text{CA}_{it} + \varepsilon_{it}$$

$$\text{Model III : } ROA_{it} = \beta_0 + \beta_1 \text{Size_NOB}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{LIQ}_{it} + \beta_4 \text{CA}_{it} + \varepsilon_{it}$$

Results and Discussion

The given six models were analyzed using Random Effects, Fixed Effects, Generalized Least Squares method and Generalized Method of Moments. Hausman test was used to select the best model from random effect and fixed effect model. According to Hausman test results random effect was the best model. From Random Effects, Generalized Least Squares method and Generalized Method of Moments same coefficient values were obtained for the variables in each model but the probability values were different. Panel data contained the problem of heteroscedasticity. Therefore, GLS was used as a solution to these problems. Therefore, the results were interpreted using Generalized Least Squares method.

$$\text{Model I: } \widehat{ROA}_{it} = 13.66 + 7.45e^{-10}\text{Size_TA}_{it} - 0.135\text{LEV}_{it} + 0.005\text{LIQ}_{it} - 0.0018\text{CA}_{it}$$

When model I is analyzed, independent variables Size_TA, LEV, LIQ and CA are observed to influence bank profitability (ROA). The overall model was significant at 1%. Out of the four variables only two variables were significant at 1%. According to panel data analysis, total assets and number of branches positively affect Return on Assets.

$$\text{Model II: } \widehat{ROA}_{it} = 12.302 + 0.00003\text{Size_NOE}_{it} - 0.122\text{LEV}_{it} + 0.002\text{LIQ}_{it} + 0.026\text{CA}_{it}$$

According to the data analysis when Model II is analyzed, independent variables Size_NOE, LEV, LIQ and CA influence bank profitability (ROA). The size variable in terms of number of employees shows no significant relationship with bank.

$$\text{Model III: } \widehat{ROA}_{it} = 16.878 + 0.001\text{Size_NOB}_{it} - 0.170\text{LEV}_{it} + 0.001\text{LIQ}_{it} - 0.006\text{CA}_{it}$$

According to the data analysis when Model III is analyzed, independent variables Size_NOB, LEV, LIQ and CA are identified as having an influence on bank profitability (ROA). There is a positive relation between the number of branches which is a bank size indicator and ROA. In other words, profitability of bank increases as number of branches increases.

$$\text{Model IV: } \widehat{ROE}_{it} = -3118.79 - 4.94e^{-08}\text{Size_TA}_{it} + 32.149\text{LEV}_{it} + 3.095\text{LIQ}_{it} + 10.504\text{CA}_{it}$$

When Model IV is analyzed, independent variables Size_TA, LEV, LIQ and CA are seen to have an impact on bank profitability (ROE). The overall model

was significant at 10%. According to this model the bank size indicator which is total assets shows no significant impact on bank profitability (in terms of Return on Equity).

$$\text{Model V: } \widehat{ROE}_{it} = -2858.49 + 0.00047\text{Size_NOE}_{it} + 29.319\text{LEV}_{it} + 3.458\text{LIQ}_{it} + 8.588\text{CA}_{it}$$

When Model V is analyzed, independent variables Size_NOE, LEV, LIQ and CA are identified as having an influence on bank profitability (ROE). In this model, too, size measures show no significant relation to bank profitability.

$$\text{Model VI: } \widehat{ROE}_{it} = -3447.29 - 0.148\text{Size_NOB}_{it} + 35.716\text{LEV}_{it} + 3.267\text{LIQ}_{it} + 11.350\text{CA}_{it}$$

Analyzing Model VI, independent variables Size_NOB, LEV, LIQ and CA have an impact on bank profitability (ROE). Size measures show no significant relation to bank profitability in terms of Return on Equity.

Taking banks separately, only Bank of Ceylon and Hatton National Bank show a relationship between bank size variables and profitability measures. In BOC, total assets have a positive impact on bank profitability. Number of employees and capital adequacy has a negative significant impact on bank profitability. In HNB, Number of branches has a positive significant impact and capital adequacy and liquidity have a negative impact on bank profitability. People's Bank and Sampath Bank do not show any impact.

Conclusion

As per panel data analysis, total assets impact positively on Return on Assets, so banks can increase total assets to increase Return on Assets. Since there is no relationship between bank size and bank profitability in Sampath Bank and People's Bank, they can pay more attention to other profitability indicators. Since HNB and BOC show a relationship between bank size and profitability, they should pay more attention to size variables and can have a greater possibility of taking advantage of economies of scale. It could be fruitful to integrate the other internal factors as well as the external factors which affect bank profitability instead of taking only the bank size. Some of these issues will be addressed in future empirical studies.

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