Impact of Loan Deposit Ratio (LDR) on Profitability: Panel Evidence from Commercial Banks in Malaysia

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Abstract

This paper examines the impact of Loan Deposit ratio on the profitability of Malaysian commercial banks for the period of 2009 to 2013. The study included all the eight locally owned commercial banks in Malaysia. Loan deposit ratio of the banks was the independent variable of the study. The dependent variable was profitability which measures through Return on Assets (ROA). Data were obtained from the annual reports of the banks. The ratio analysis along with descriptive, correlation analysis, paired T- test and regression analysis were used in this study. The result of the study indicated that there was a positive and non-significant impact of LDR on ROA is five banks (Bank 1, 2, 3, 4 and 8). Further the study revealed that only one bank (Bank 5) had a negative and non-significant impact of LDR on ROA and bank 7 had positive and significant impact.

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1. Introduction

Loan- deposit ratio is a useful instrument to determine bank liquidity, and by extension, it influences the profitability of the banks. The bank profit is based on the interest charged against the deposits; it means the profit is generated through the positive difference between interest of loans and interest on deposits supported a study by Joni Tamkin Borhan & Towpek (2006). In general banks may not be earning optimal return if the LDR ratio is too low. The intention of this study is to get empirical evidence about influence of LDR to ROA in locally owned commercial banks in Malaysia. Many studies analyzed various factors influence of ROA viz. capital and ROA (Berger, 1987), loan ratio and profitability (Bashir and Hasan, 2003) ratio of equity to assets and profitability (Athanasoglou et al. 2006), Loans & deposit and profitability of the bank (Naceur, 2003) and deposits to total assets ratio and profitability Anna P. I. Vong et al (2009).

Among the various factors, loans and deposits is one of the prime factors for determining the profitability of the bank. Both loans and deposit are equally important in the banking operation like two sides of the same coin. The aim of the study is to identify the influence LDR of locally owned commercial banks in Malaysia and the profitability of the same banks. In general the main source of income for the banks is interest from loans and advances. The primary function of the bank is to lend money to the borrowers through mobilize the interest revenue; this is the ultimate source of revenue for the commercial banks. Normally all the banks try to increase the amount of loans to the borrowers for aggregate interest revenue in the financial statement. It is understandable that the banks offer more loans the more it goes to generate high revenue and profit, Abreu and Mendes (2002).

Obviously the banks offering more loans to the customers for the benefit of interest revenue, on the same time there is possibility for a risk of liquidity. Simultaneously it negatively affects the bank profitability, Rasiah (2010). The main source of fund mobilizing by the bank is deposits, the banks offered different types of deposits to its customers and financial institutions. Among the various sources of funds for the bank, deposit is the cheapest and the easiest way to mobilize. This deposit has a link with profitability of the bank, Devinaga Rasiah (2010). Accepting deposits is a liability for the bank, further it is liable to pay interest to the deposit holders. A study conducted by Husni (2011) stated that there is a significant and positive relation between return on assets and total liabilities to total assets.

The objective of the study is to identify the impact of loan-deposit ratio on the profitability of locally owned commercial banks in Malaysia. The identified tools for the study are loan deposit ratio and return on assets. Most of the previous studies conducted on LDR and bank liquidity, bank size and profitability, capital and profitability etc., but the

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present study is mainly focus the direct relation between the LDR and ROA of locally owned commercial banks through case by case.

The rest of this paper structured in five segments. The first segment discussed in details the loan deposit ratio, return on assets and present banking system in Malaysia. The second section provides some literature discussion on these ratios. The third section focuses on research methodology. The fourth section provides data analysis and interpretation, and the final section concentrates summary of findings and conclusion.

1.1 Present Banking System in Malaysia

The Malaysian banking system is not a new to the financial world. It is old, systematic and regulated institution. During 1900s rapid economic development with the result of thriving profits from rubber plantations and the tin industry, therefore opening foreign bank branches in Malaysia was unavoidable. Due to overall development, Malaysia's first domestic bank – Kwong Yik (Selangor) Banking Corporation (now Malayan Banking Berhad) in 1913 was established.

Bank Negara Malaysia (BNM) is the central bank of the country, this is the apex of the monetary and financial structure of the country (Debbie, 2012) and a statutory body which is wholly-owned by the Federal Government was established on 26 January 1959, under the Central Bank of Malaysia Ordinance 1958. The primary functions of Bank Negara are to: promote monetary stability and a sound financial structure, act as a banker and financial adviser to the government, issue currency and keep reserves safeguarding the value of the currency and influence the credit situation to the advantage of the country.

At present licensed banking institutions in Malaysia consists of five broad areas are Commercial Banks, Islamic Banks, International Islamic Banks, Investment Banks and Other Financial Institutions (Bank Negara Malaysia, Central Bank of Malaysia). Further the commercial banks are classified in to two are locally owned commercial banks and foreign owned commercial banks. Initially, commercial banks in Malaysia were governed by the Banking Act 1973. Later the Banking Act was replaced by Banking and Financial Institutions Act 1989(BAFIA). The Banking Act 1973 and Finance Companies Act 1969 combined and formed a single legislation was BAFIA. Due to mergers of local banks and various finance companies resulted into 10 local banking groups. As at May 2008, there were nine local banking groups. At present there were 8 locally owned commercial banks performing the functions in Malaysia. Commercial banks occupy a predominant role in Malaysian banking system. According to the web site of Ministry of Finance, Malaysia indicted that the finance and insurance sectors contribution in country GDP for the year 2013 is RM 72,654 million, further it is expected to grow RM 75,299 million in 2014.

The primary functions of commercial banks in Malaysia include mobilize the funds through savings, current , fixed deposit accounts and other financial instruments, lending loans and advances to business entities and private individuals in the name of working capital, investment and consumption, trade finance to domestic and international trade, treasury services to customers, foreign exchange transactions, cross border fund transfer service, provide customary service, involving wealth management activities, hire purchase and leasing activities etc.

As per the Bank Negara's classification the commercial banks are classified into two group viz. locally owned commercial banks and foreign owned commercial banks. There are 8 locally owned commercial banks are functioning in Malaysia are Affin Bank Berhad, AmBank (M) Berhad, Alliance Bank Malaysia Berhad, CIMB Bank Berhad, Hong Leong Bank Berhad, Malayan Banking Berhad, Public Bank Berhad (MayBank) and RHB Bank Berhad. The present study is analysing the data on the same order of arrangement of the banks given above. There are 19 foreign owned commercial banks in Malaysia are BNP Paribas Malaysia Berhad, Bangkok Bank Berhad, Bank of America Malaysia Berhad, Bank of China (Malaysia) Berhad, Bank of Tokyo-Mitsubishi UFJ (Malaysia) Berhad, Citibank Berhad, Deutsche Bank (Malaysia) Berhad, HSBC Bank Malaysia Berhad, India International Bank (Malaysia) Berhad, Industrial and Commercial Bank of China (Malaysia) Berhad, J.P. Morgan Chase Bank Berhad, Mizuho Bank (Malaysia) Berhad, National Bank of Abu Dhabi Malaysia Berhad, OCBC Bank (Malaysia) Berhad, Standard Chartered Bank Malaysia Berhad, Sumitomo Mitsui Banking Corporation Malaysia Berhad, The Bank of Nova Scotia Berhad, The Royal Bank of Scotland Berhad and United Overseas Bank (Malaysia) Bhd. The present study mainly concentrates all the eight locally owned commercial banks in Malaysia.

1.2 Loan- Deposit ratio

The main activity of bank is using the funds (deposits) effectively by the way of lending (financing). In general the loan-deposit ratio is measures bank's liquidity as well as profitability of the bank. The ratio is calculated by dividing the total amount of loans, by total amount of deposits (Michael Taillard, 2014). The resulting figure is expressed as a percentage.

The Loan- Deposit Ratio is defined by the following formula.

$$\text{Loan- Deposit Ratio} = \frac{\text{Total Loans}}{\text{Total Deposits}} \times 100 \qquad (1)$$

A high LDR indicates two things, firstly the bank is issuing out more of its deposits in the form of interest bearing loans; secondly the bank generates more income. Here the problem is failure in repayment of loan, in such a case the banks liable to repay the deposit money to

their customers, so the ratio is too high puts the bank at high risk. Alternatively a very low ratio means bank is at low risk, on the same time it is not using assets to generate income.

In Malaysian Banking scenario the total loans shown in the balance sheet in the name of 'loans, advances and financing', it includes term loans, credit card receivables, bills receivables, trust receipts, claims on customers under acceptance credits, loans/ financing to financial institutions, resolving credits and staff loans. Total deposits include both deposits from customers and deposits and placements from banks and other financial institutions. The later one includes licensed banks, licensed investment banks, licensed financial institutions, Bank Negara etc. Deposits from customers includes demand deposits, savings deposits, fixed deposits, special investment deposits, money market deposits, negotiable instruments of deposits and structured deposits. The study individually identified the loans and deposits of each locally owned commercial bank for the period of five years and calculated the ratios. Here the study has taken amount of loans and deposits from the group financial statement of the bank annual reports.

1.3 Return on Assets

Bank profitability can be measured through various factors; return on assets (ROA) is one of the important measures (Paul Kupiec and Yan Lee, 2012). This ratio is connected with bank profit and the total assets. In other way the **return on assets** (**ROA**) shows percentage how a bank's are in generating .

The ratio is higher, the management efficiently utilizing its assets. This ratio is calculated by profit before tax to total assets of the bank and it is expressed as a percentage.

The Return on Assets is defined by the following formula.

$$\text{Return on Assets Ratio} = \frac{\text{Profit before Tax}}{\text{Total Assets}} \times 100 \qquad (2)$$

This ratio indicates how many dollars of earnings the bank derive from each dollar of assets they control. This is useful device for comparing the organizations with in the same industry. The annual reports of Malaysian banking sector shows the total assets in the balance sheet which comprises cash and short term funds, reverse repurchase agreements, deposits and placements with banks and other financial institutions, financial investments at fair value through profit or loss, derivative financial instruments, financial investments available-for-sale, financial investments held-to-maturity, loans, advances and financing, other assets, deferred tax assets, tax recoverable, statutory deposits with central banks, investment in associates, investment in jointly controlled entities, property, plant and equipment, investment properties, prepaid lease payments, goodwill and intangible assets, all these values are related to group financial statement.

2. Literature Review

Samy Ben Naceur (2003) investigates the impact of bank's characteristics, financial structure and macroeconomic indicators on bank's net interest margins and profitability in the Tunisian banking industry for the 1980-2000 period. The study specifically mentions that the interest margin and bank loans have a positive and significant impact. Syahru Syarif (2006) conducted a study and analysed the correlation between NIM and other factors, specifically ROA and LDR. The study concluded that these two variables has influenced positively significant to the NIM variables. Pamuji Gesang Raharj (2014) study analysed the micro variables CAR, LDR, NPL, ROA, and total asset, only CAR and NPL have significant influence in affecting intermediation efficiency. It happens because the measurement that is used in efficiency inputs outputs are partial finance ratio where banks can manage it, so that the real bank performance cannot reflect well.

Another study conducted by Hawast and John (1977) analyzed the profitability and cost control measures and the study concluded that the bank's profitability is significantly determined by the cost control methods adopted by the bank. Further the study noticed that the high profit earning banks recorded lower operating costs. The bank profitability is depends on various factors, a study analyzed the bank profitability factors and concluded that the bank profitability is linked with bank management, customer service and financial performance etc. (Shah, 1979).

A study analyzed the reasons of low profitability in the organization, it found the reasons are low productivity; low productivity is due to the result of inefficient methods of operation, bad layouts, excessive product variety, not up to par working conditions, power breakdowns and poor maintenance of records (Srivastava,1981). The effective utilization of resources is one of the important factors for the profitability of any organization. Das, Abraham and Ramanathan, T.V. (2000) in their study concluded that Indian commercial banks lost output during 1998 due to the result of underutilization of resources. Based on the previous literature, it is identified that the loan deposit ratio is one of the significant factors to determine the profitability of the bank. Thus the following hypothesis was established to empirically explore in this study on the basis of above literature discussion.

Ho: The loan deposit ratio has positive and significant impact on return on assets.

3. Methodology

The study has been conducted an all 8 locally owned commercial banks in Malaysia. Those Banks' financial data for a period of 5 years from 2009 to 2013 are chosen for the present analysis. The financial statements of the annual reports are belongs to group data.

The dependent variable of the study is return on assets (ROA) and the independent variable of the study is loan deposit ratio (LDR). The present research work is based on historical accounting data; it has been collected from the annual reports of all locally owned commercial banks. The secondary data related to literature of the study were also gathered from the books, journals, research articles, World Wide Web (internet) etc. The study was adopted the ex-post facto research design.

The data interpretation was made by ratios and also based on mean, standard deviation, skewness, kurtosis, paired t –test and correlation. The study also applied ordinary least squares (OLS) technique to test the hypothesis. The loan deposit ratio and return on assets demonstrated in the following regression model. The return on assets included in the analysis as the dependent variable and the independent variable is denoted as loan deposit ratio.

The regression model is specified below and the following symbols were used to identify the respective variables. The general model is as follows

$$Y_1 = \alpha_1 + \beta_1 X_1 + \varepsilon \qquad (3)$$

Where

$Y1 =$ 	Return on Assets (ROA)

$\beta1\ X1 =$ 	Loan Deposit Ratio (LDR)

α_1 	$=$ 	Intercept

ε 	$=$ 	Error term

4. Results and Discussion

4.1 Descriptive Statistics

Individual bank wise calculated ROA and LDR for the study period have been presented in the descriptive statistics format in the table 1 for the further analysis. The descriptive table includes minimum, maximum, mean and standard deviation, skewness and kurtosis of both independent and dependent variables of the study. The descriptive statistics is presented in the Table 1.

Table 1: Descriptive statistics –Return on Assets and Loan Deposit Ratio

Bank	Return on Assets (ROA)							Loan Deposit Ratio (LDR)						
	N	Min	Max	Mean	Std.	Ske	Kur	N	Min	Max	Mean	Std.	Ske	Kur
Bank 1	5	1.18	1.34	1.2620	.07362	.304	-2.749	5	.67	.73	.7020	.02387	-.206	-1.117
Bank 2	5	1.35	1.86	1.6160	.21594	-.351	-2.262	5	.81	.94	.8840	.04827	-.786	1.274
Bank 3	5	.95	1.63	1.4040	.28841	-1.241	.616	5	.70	.80	.7320	.03962	1.804	3.504
Bank 4	5	.55	1.59	1.3660	.45709	-2.214	4.916	5	.77	.82	.8000	.02000	-.938	-.187
Bank 5	5	1.58	1.73	1.6600	.07280	-.181	-2.972	5	.74	.81	.7680	.02775	.927	.130
Bank 6	5	.97	1.46	1.3200	.20062	-1.975	4.020	5	.51	.87	.6800	.12961	.371	1.479
Bank 7	5	1.18	1.42	1.3440	.09711	-1.669	2.911	5	.70	.82	.7860	.05079	-1.729	2.837
Bank 8	5	1.29	1.59	1.4260	.10784	.623	1.852	5	.75	.81	.7700	.02550	1.207	.580

The result of the analysis shows that Bank 2 had the highest ROA (1.86%) followed by the bank 5 (1.73%) and all other banks have a meager difference between the Bank 2. The least percentage of ROA is 1.34 in Bank 1. In general rule of thumb in other than the banking sector expects not less than 5% of ROA, in the banking sector which strives to record an ROA of 1.5% or above. In this case almost all the banks reach the expected level of ROA. The same concept applied in the five year average of ROA, Bank 5 had 1.66% and it is the highest average among the banks. Here the recordable information from the analysis is that all the banks have positive mean value for the study period.

The standard deviation of ROA indicates all the banks have positive value. There is no negative standard deviation among the banks in the case of LDR. In the case of LDR of locally owned commercial banks in Malaysia all most are same, only a meager difference among the banks. Bank 2 had the highest mean value of LDR followed with Bank 1 had 0.7020. The general rule stated that the higher value of standard deviation implies greater spread of data, smaller the standard deviation shows the data is concentrated around mean. In such a case all the banks standard deviation is positive as well as higher, so the data of the present study spread over the mean value.

In addition the table 1 shows that the skewness of ROA fluctuates from bank to bank. Bank 2, 3, 4, 5, 6 and 7 are negative and the remaining banks skewness are positive. In the case of LDR, bank 1, 2, 4, and 7 shows negative skewness. The negative skewness indicates an uneven distribution with a higher than normal. However, the negative and positive skewness is not significantly above the +1 or -1, therefore it does not pose and severe treat to data for the future analysis.

4.2 Paired T- test and correlation analysis

Paired t-test is based on distribution and is considering an appropriate test for judging the significance of a sample mean. The paired T –test compares the two samples (ROA and LDR) where in this case the value in one sample has a natural partner in other. Correlation is to analyze the relationship between two random variables, here the study examine the relationship between LDR and ROA. The result of the analysis is presented in the Table 2 and 3.

Table 2: Test of Significance of ROA and LDR	
PAIRED t-Test	
Mean Difference	0.65950
SE (Mean Difference)	0.03982
Calculated t – value	16.561
Table Value	1.96

Table 3: Correlation analysis

Correlation	ROA	LDR
ROA Pearson Correlation	1	0.631
Sig. (2 tailed)		0.094
N	8	8
LDR Pearson Correlation	0.631	1
Sig. (2 tailed)	0.094	
N	8	8

The table 2 shows that the mean difference between the two variables is 0.65950, the mean difference is 0.03982 and the calculated t – value is 16.561. The table value against the calculated t- value is 1.96; the calculated value is more than the table values therefore the hypothesis is accepted i.e. there is significant difference in the mean ratio of LDR and ROA. The table 3 shows that the Pearson correlation is 0.631, it concludes that the LDR indicate that the strength of association between ROA is high ($r = 0.631$), therefore it is proved and accepted the hypothesis that the LDR has an impact on ROA of locally owned commercial banks in Malaysia.

4.3 Regression Analysis

The equation 3 is analyzed through linear regression technique. The regression coefficients are analyzed the independent and dependent variables and identify both magnitude and the direction of impact. The analyses have been done by case to case and determine the impact of loan deposit ratio on return on assets. An attempt is made to compute the regression and resultant figures are presented in Table 4.

Table 4 Regression results on impact of LDR on ROA

Banks	R	R square	Adjusted R Square	Standard Coefficients		Sig.
				Beta	t value	
Bank 1	0.751[a]	0.564	0.419	0.751	1.970	0.143
Bank 2	0.772[a]	0.596	0.461	0.772	2.102	0.126
Bank 3	0.001[a]	0.000	-0.323	0.001	0.002	0.998
Bank 4	0.831[a]	0.691	0.588	0.831	2.591	0.081
Bank 5	0.408[a]	0.167	-0.111	-0.408	-0.775	0.475
Bank 6	0.208[a]	0.043	-0.276	0.208	0.368	0.738
Bank 7	0.911[a]	0.830	0.774	0.911	3.834	0.031
Bank 8	0.596[a]	0.355	0.140	0.596	1.286	0.289

The table 4 stated that, if the banks had higher value of R indicates high correlation between the observed and predicted value of the dependent variable. Further the table shows the individual value of R for the selected banks. It is clear that the bank 7 had highest value of R followed with bank 4; bank 2, bank 1 and bank 3 had least R value.

R square represents the proportion of variance in the dependent variable (Return on Assets) which can be explained by independent variable (Loan deposit ratio). Here the R square had been more than 0.5 for the bank 7, bank 4, bank 2 and bank 1 and all other firms had less than 0.5. Bank 7 had positive and significant result on the analysis.

Further the results are grouped in to three categories are positive and significant impact of LDR on ROA, positive non-significant impact of LDR on ROA and negative and non-significant impact of LDR on ROA. The present study revealed that there was a positive and non-significant impact of LDR on ROA is five banks (banks 1, 2, 3, 4 and 8), in these banks, the impact of LDR on ROA is positive but not significant. Further the study revealed that there was a negative and non-significant impact of LDR on ROA is only one bank i.e. Bank 5. Bank 7 had positive and significant impact.

5. Conclusions and Recommendations

The present study is an attempt to evaluate the impact of LDR on ROA for locally owned commercial banks in Malaysia for the period of five years from 2009 to2013. In general the study indicates that there was a positive impact on LDR to the profitability (ROA) of the banks. As per the study all the banks have positive and non-significant relationship between the variables except banks 5 and 7. There is a condition for increase the profitability especially return on assets on the basis of the increase of loan deposit ratio. The research study strongly believes that if the banks concentrate the loan deposit ratio will result the profitability of the bank.

The study is not free from the limitations, first the study mainly considers only the locally owned commercial banks in Malaysia, and it does not include the foreign owned commercial banks in Malaysia. Second the study has taken only group data from the annual reports of locally owned commercial banks in Malaysia. Further the study creates a new avenue to the future researchers to explore the relationship between profitability of the bank and other factors. According to Vong et al. (2009) study findings exhibits a positive relationship between loan ratio and profitability. Further Abreu and Mends (2002), Ferdi (2005), Fitriani (2010) and Rasiah (2010) found that there is appositive and significant relationship between the ratio of the LDR and bank profits. The present study is also aligning with the previous studies.

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