

THE EFFECT OF ASSET LIABILITY MANAGEMENT ON THE LIQUIDITY RISK OF DOMESTIC LICENSED COMMERCIAL BANKS IN SRI LANKA

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Abstract

This study examined the effects of asset liability management on the liquidity risk of domestic licensed commercial banks in Sri Lanka. For this purpose, 10 domestic licensed commercial banks over time period from 2009 to 2016 were selected due to availability of needed data. The secondary data were collected from the bank's annual reports for the analyses. The collected data were analysed using statistics such as descriptive statistics, correlation coefficient and regression analysis. The study established that liquidity risk can result into experiencing adverse operational and financial problems such as decline in investor confidence, panic withdrawals and daily operation problems. Hence, banks attempt to control asset liability management factors such as capital adequacy ratio, return on equity, return on assets, loans to deposits ratio and total assets of commercial banks by balancing cash inflows and outflows. According to the results of regression analysis, capital adequacy ratio, return on asset, loan to deposit ratio have significantly positive effect on liquidity risk while size of the bank has a significantly negative effect on liquidity risk. At the same time, there is no significant relationship between return on equity and liquidity risk. Therefore, the findings of the analysis concluded that the asset liability management have an effect on the liquidity risk of Sri Lankan domestic commercial banks.

Keywords: *Commercial banks, Asset liability management, Liquidity risk, Profitability.*

Introduction

Commercial banks play a crucial role in the development of a country. A sound, progressive and dynamic banking system is a major requirement for economic development. As an ultimate phase of the tertiary sector of an economy, commercial banks act as the backbone of economic growth and prosperity by acting as a catalyst within the process of development. They instruct the habit of saving and mobilize funds from several small households and business firms spread over a geographical region. Asset Liability Management (ALM) plays an important role in weaving together the various business lines in a financial institution. Managing liquidity and the financial positions are crucial to the existence of a financial institution and

sustenance of its operations. It is also essential for seamless growth of the financial position in a profitable way.

Over the years, banks remained and will continue to be an important institution for any economy as they play the most fundamental role in the payments system. In most developing countries, commercial banks are the most leading financial institutions with the capital market institutions playing a minimal role. Of the main function of commercial banks is the availing of funds (monetary) to its customers.

The market turmoil that began in mid-2007 highlighted the vital significance of market liquidity to the banking sector. The tightening of liquidity in positive structured products and interbank markets, as well as an increased likelihood of off-balance sheet

commitments coming on to banks' balance sheet led to severe funding liquidity strains for some banks and called for central bank intervention in some cases. In response to the market events, the Basel Committee¹ original mandate was expanded and the working group on liquidity risk (management and supervisory challenges) made initial observations on the strengths and weaknesses of liquidity risk management in instances of difficulty (BIS, 2008).

These types of observations, along with those provided by the review of national liquidity rules, designed the basis of the report, which was submitted to the Basel Committee in December 2007. Originally, Basel II guidelines did not longer focus on liquidity risk management and the spotlight was on architecting a framework for regulatory oversight of banking capital adequacy to ensure efficient usage and management of capital. Just at the onset of the crisis in 2008, the Basel Committee started concentrating on liquidity risk management.

The word, ALM, is defined by different scholars like Gup and Brooks (1993), Zawalinska (1999), and Charumati (2008). They defined ALM as an energetic process of planning, organizing, coordinating and controlling the asset and liabilities; their mixes, volume, maturities, yield and costs in order to achieve a specified net interest income (NII). In other words, it deals with the optimum investment of assets in view of meeting current goals and future liabilities. It is related to the management of the risk associated with liquidity mismatch, interest rates and foreign exchange movements. Therefore, ALM is focused with an attempt to match assets and liabilities in terms of maturity and interest rate sensitivity to minimize interest rate and liquidity risks.

¹ The Basel Committee on Banking Supervision (BCBS) is the main global standard setter for the prudential regulation of banks and provides a forum for regular cooperation on banking supervisory matters. Its 45 members comprise central banks and bank supervisors from 28 jurisdictions

Liquidity risk is one of the importance risks faced by banks in addition to credit risk, market risk and operating risk. The connection between the banks liquidity position and competition among the banks. They framed a stylized model of bank management, where the asset and liabilities structures are key factors in determining the bank's exposure to liquidity risk. The major results of this model are that liquidity risk increases when competition in the credit market increases, which means that more demand in the credit market increases the lending rate which results in increase in spread (ex: interest margin) While increasing competition in the deposit market will decrease the liquidity shortage. This means that utilization of resources in the form of deposit will increase the liquidity position of the bank. They decided that, the banks faced increased liquidity risk due to the recent developments in the financial markets.

Asset liability management plays a vital role in weaving together the distinct business lines in a bank. The management of both the liquidity and financial position are crucial to the existence of a financial institution and sustenance of its day to day operations. It is also crucial for seamless growth of the balance sheet in a profitable way. Normally, the Asset liability management function seeks to generate daily gaps on short-term ladders and ensures that cumulative gaps operate within pre-set limits. However, managing liquidity gaps alone is not adequate. A well-managed liquidity function will cover liquidity plan, liquid asset buffers and setting liquidity policies and limits in tune with level of risk that the management believes is acceptable and manageable.

Problem Statement

Asset Liability Management is an essential tool for decision making that sets out to maximize stakeholder value. However it is important to track the external factors of the asset and liability management in the market to remain in the long term and to prepare for negative effects. Banking sector investigation

could be the instrument to measure the sustainability of the country's financial sector. The study revealed that banks tend to take more risk over time. The cycles of bank assets and liability are not identical to the cycles of business activity level, therefore it is seen that banks manage their assets and liability and attempt to influence their activity and profitability. The results show why the banks tend to enhance their risk levels before and during the financial crisis.

Research Objectives

Primary objective

- To determine the effect of asset liability management on the liquidity risk of domestic licensed commercial banks in Sri Lanka.
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Secondary objectives

- To analyse the effect of asset-liability maturity gap of scheduled commercial banks in Sri Lanka on liquidity risk.
- To determine the relationship between the assets liability management variables on liquidity risk
- To analyse the relationship between the banks' specific variables with liquidity risk.

Literature Review

According to Guthua's (2013) research of effect of Asset Liability Management on liquidity risk of commercial bank in Kenya and he found that Liquidity is an important determinant of financial distress. The objective of liquidity management thus is to ensure that banks are able to meet in full all their financial obligations as they fall due. Banks liquidity is directly affected by asset liability management decisions in the management of the financial position of commercial banks. Asset liability management involves the management of the total financial position dynamics and it involves quantification of risks and

conscious decision making with regard to asset liability structure with the purpose of maximize the interest earnings within the framework of perceived risks. The main objective of asset liability management is not to eradicate risk, but to manage it in a way that the volatility of net interest income is minimized in the short run and economic value of the bank is secure in the long run.

Shararareg (2013) investigated the effect of asset liability management on the liquidity risk of commercial bank in Zimbabwe. He said the commercial banks play an important role in the development of a country. A sound, progressive and dynamic banking structure is a fundamental requirement for economic development. In the commercial bank's liquidity risk asset liability management of the bank significantly effect. Managing liquidity and the financial position are crucial to the existence of a financial institution and sustenance of its operation.

Jeevarajasingam (2014) found that the recent crisis has underlined the importance of sound bank liquidity management. In reaction, regulators are devising new liquidity standards with the aim of making the financial system more stable and resilient. Liquidity is most significant discipline of Banks' Profitability. Liquidity preservation is an operational tool that helps to determine 'how does a bank choose their liquidity assets?' bank liquidity maintenance is then the arrangement or structure of its liquidity assets. This Study intention to examine the impact of liquidity on profitability of banking sector in Sri Lanka from 2008 to 2012. To develop this research, samples were selected from all commercial banks in Sri Lanka. After data were collected from secondary sources of those samples, these data were presented and analysed by using correlation and regression tools. In this research, the researcher determined about the hypothesis providing, then clarify the research findings, after that the researcher formed a final conclusion. Some important ideas also were given for the future studies. According to the

analyses, disclosed that liquidity ratio has strong positive correlation with return on assets. Else there is no relationship between liquidity and banks' profitability. There is no significant influence of liquidity on profitability of banking sector in Sri Lanka.

Ratnovski (2013) conducted a study on Canadian banks and he was unable to refinance short-term liabilities in case of solvency concerns. To cope this risk, banks can accrue a buffer of liquid assets, or strengthen transparency to communicate solvency. While a liquidity buffer offers complete insurance against small shocks, transparency also covers large shocks but imperfectly. Due to leverage, an unregulated bank may choose inadequate liquidity buffers and transparency. The regulatory response is contained: while liquidity buffers can be imposed, transparency is not verifiable. Besides, liquidity requirements can compromise banks' transparency choices, and increase refinancing risk. To be effective, liquidity requirements should be accomplished by measures that increase bank incentives to adopt transparency.

Bonfim & Kim (2011) in a study on European and North American banks in the 2002- 2009 period illuminate how banks manage liquidity risk. They also identify the determinants of liquidity risk. The results identify that the type of relationship between liquidity risk and size, performance and the ratio between loans and deposits depends on the type of liquidity risk measure used. Bank size generally has a positive impact on bank liquidity, while the performance measure has an unclear relationship with liquidity risk.

Gyekyi Samuel (2011) examined ALM is relevant to and critical for the sound management of the finances of any organization that invest to meet its future cash flow needs and capital requirements. An effective asset-liability management requires maximizing firms profit as well as controlling and lowering various risks. This multi-objective decision problem purposes at

reaching objectives such as maximization of liquidity, revenue, capital adequacy, and market subject to strategic financial management, legal requirements and institutional policies in order to progress the profitability of banks.

This research observed the programming model to examine the assets and liability management in relation to profitability by financial institution taking into account the specific characteristics of Ghanaian Financial Environment. The final aim is to identify the best possible strategy to manage the composition of financial institution's assets and liability by controlling the various types of business strategies to maximize profitability. The model contribute to the model contributes to the specific goals and constrains. It tests the sensitivity of financial institution performance for different risk taking strategies in environment. To be able to attain the objectives of this research, a study target of all the 27 NIB branches in the country were considered by randomly interviewing functional managers from 7 branches in the country from Eastern Region and Greater Accra and five years' financial reports from the headquarters were fully analysed to draw conclusion about the subject. It is recommended that in view of the importance of asset-liability management, banks should adopt formalized ALM techniques that should be exposed to periodic update and with the view to meet the goals and objectives of portfolio management.

The literature review suggests that most of the studies focused on the African and European countries, only a few studies have focused on the context of Sri Lanka. Further it extends only the analysis of impact has focused in the context of Sri Lanka.

Methodology

The research methodology is presented since the central part of research activity is to develop an effective research strategy or design. Research methodology focus on the

research process and the kind of tools and procedures to be used. The study focus on effect of capital adequacy, return on equity, return on asset, loan to deposit ratio and size of asset on liquidity risk. These studies explained multi-factor models as well as single factor models. The following methodological approach is adopted in the study for establishing the effect of asset liability management on the liquidity risk of domestic licensed commercial banks in Sri Lanka.

Conceptual Framework

Based on the extract literature, the following conceptual model and hypothesis formulated. Conceptualization model provides an outline to understand the effect of asset liability management on the liquidity risk of domestic licensed commercial banks in Sri Lanka.

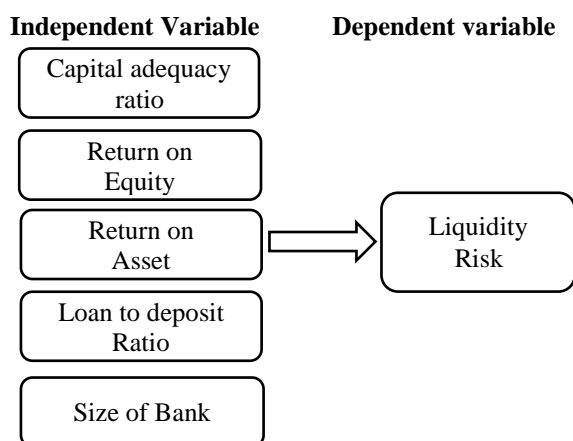


Fig 1. Conceptual framework of study

Operationalization

Table 1. Operationalization of study

Dependent Variable	Proxies
LQR (Liquidity risk)	Net liquid assets / T. short term liabilities
Independent Variables	
CAR (Capital Adequacy ratio)	Capital/ asset
ROE (Return on Equity)	Earnings available for equity/ Common stock equity
ROA (Return on Asset)	Operating income / Total asset
LTD (Loan to deposit ratio)	Gross loan / Gross deposit
SIZE (Size of the bank)	A log of total assets

Hypothesis

Main Hypothesis

H1: ALM has a significant effect on Liquidity risk in the banking sector

H0: ALM has not a significant effect on Liquidity risk in banking Sector

Sub Hypothesis

H1: There is a significant relationship between liquidity risk and CAR

H2: There is a significant relationship between liquidity risk and ROE

H3: There is a significant relationship between liquidity risk and ROA

H4: There is a significant relationship between liquidity risk and LTD

H5: There is a significant relationship between liquidity risk and SIZE

Data Collection

This study used annual data of 10 domestic licensed commercial banks during the period of 2009 to 2016. So for the purpose of this study, the study population consist 80. The annual data were collected from the annual reports of each bank. The particular data were extracted from bank's annual reports financial highlights, statement of financial positions, income statements and the banks' performance summary. However, this data only represented individual banks position and not cover subsidiaries or group.

Analytical Model

Liquidity risk is the dependent variable while Asset liability management components are the independent variables of the research study.

$$LQR_{it} = \alpha + \beta_1 CAR_{it} + \beta_2 ROE_{it} + \beta_3 ROA_{it} + \beta_4 LTD_{it} + \beta_5 SIZE_{it} + e_{it}$$

Where,

α is the value of the intercept.

β 's is the coefficient of the explanatory x variables.

e_{it} is the error term assumed to have zero mean and independent across time period.

CAR $_{it}$ – This is a measure of the financial

strength of a bank, expressed Capital Adequacy Ratio of bank *i* for the period of *t*. This is given by dividing total capital by the total risk weighted assets.

ROE_{it} – It is measured by dividing earnings available for common stockholders to common stock equity, expressed Return on Equity of bank *i* for the period of *t*.

ROA_{it}–This is the bank asset utilization ratio and is measured by dividing the operating income by the total assets, measured Return on Asset of bank *i* for the period of *t*.

LTD_{it} –This ratio measures the gross loans to gross deposit ratio. It is the amount of a bank's loans divided by the amount of its deposits at any given time, expressed Loan to Deposit ratio of bank *i* for the period of *t*.

SIZE_{it} –This is measured as the log of total assets, expressed Size of bank of *i* for the period of *t*.

Findings & discussions

The data were analysed by the computer software known as statistical package for service solution (SPSS 20.0) software. The all data were calculated with SPSS and it was

used in investigating, measuring and comparing the specific issues about the effect of asset liability management on the liquidity risk.

Descriptive Statistics

These statics define various characteristic of the variable like, mean value represents average of all the values of a variable from the below table 2 in which descriptive values of all variables have been calculated as shown that the all variables are based on the 80 observation. The average mean value represents that average values of all variables. According to the study result of the descriptive statistics indicates that the mean values of variables (LQR, CAR, ROA, ROE, LTD and SIZE) are respectively 40.457, 14.588, 18.486, 1.905, 120.119 and 5.432. The standard deviations for each variable specified that data are widely spread around their respective means. (LQR – 41.25, CAR –3.04, ROE –9.15, ROA – 1.80, LTD – 118.97, Size – 0.44). LQR, CAR, ROE, ROA, and LTD have positive skewness which indicates that the fat tails on the right hand side of distribution. The SIZE has a negative skewness which indicates that fat tail on the left hand side of distribution. In case of kurtosis LQR, CAR, ROE, ROA, and

Table 2. Results of Descriptive Analysis

		LQR	CAR	ROE	ROA	LTD	SIZE
N	Valid	80	80	80	80	80	80
	Missing	0	0	0	0	0	0
Mean		40.457	14.588	18.486	1.905	120.119	5.432
Median		26.835	14.100	17.750	1.600	89.370	5.467
Mode		21.80 ^a	15.97	20.80	1.80	67.31 ^a	4.33363 ^a
Std. Deviation		41.25	3.04	9.15	1.80	118.97	.44
Skewness		4.304	.875	.752	4.977	4.277	-.224
Std. Error of Skewness		.269	.269	.269	.269	.269	.269
Kurtosis		21.693	2.008	2.087	27.192	18.599	-.653
Std. Error of Kurtosis		.532	.532	.532	.532	.532	.532
Minimum		20.19	7.94	.42	.19	67.31	4.33
Maximum		295.00	25.80	49.20	12.30	758.23	6.22

LTD are positively skewed which illustrate that all have peaked distribution compared with normal distribution. The SIZE only has negative skewed which negatively skewed illustrates that fatness of a distribution compared with normal distribution.

The maximum values of the variables between the study periods are 295, 25.80, 49.20, 12.30, 758.23 and 6.22 for LQR, CAR, ROE, ROA, LTD and SIZE. Likewise, minimum values of the variables are 20.19, 7.94, 0.42, 0.19, 67.31, and 4.33 respectively.

Correlation Analysis
Correlation analysis is used to understand the strength of relationship between two variables. . It can be estimated a sample correlation coefficient, more specifically the Pearson correlation coefficient. The sample correlation coefficient denoted r, ranges between $-1 \leq r \leq +1$ and enables us to have an

idea about the degree and direction relationship between the two variables.

The relationship between the various independent variables and dependent variable used in the study. As it is observed the correlation values are found to be mixed (both positive and negative) in this study. CAR, ROE, ROA, LTD variables are positively correlated and Size is negatively correlated. The positive correlation means if one variable increases, at that time the other variable also increases and vice versa. The negative correlation means if one variable increases, at that time the other variable decreases and vice versa. The strong positive correlation coefficient of the variables are CAR, ROA and LTD. The weak positive correlation of the variable is ROE. The negative correlation coefficient of variable is SIZE.

Table 3. Pearson Coefficient of Correlation Matrix

		LQR	CAR	ROE	ROA	LTD	SIZE
LQR	Pearson Correlation	1	.658**	.046	.551**	.516**	-.428**
	Sig. (2-tailed)		.000	.686	.000	.000	.000
	N	80	80	80	80	80	80
CAR	Pearson Correlation	.658**	1	.142	.587**	.494**	-.337**
	Sig. (2-tailed)	.000		.210	.000	.000	.002
	N	80	80	80	80	80	80
ROE	Pearson Correlation	.046	.142	1	.300**	-.183	.367**
	Sig. (2-tailed)	.686	.210		.007	.104	.001
	N	80	80	80	80	80	80
ROA	Pearson Correlation	.551**	.587**	.300**	1	.345**	-.197
	Sig. (2-tailed)	.000	.000	.007		.002	.080
	N	80	80	80	80	80	80
LTD	Pearson Correlation	.516**	.494**	-.183	.345**	1	-.353**
	Sig. (2-tailed)	.000	.000	.104	.002		.001
	N	80	80	80	80	80	80
SIZE	Pearson Correlation	-.428**	-.337**	.367**	-.197	-.353**	1
	Sig. (2-tailed)	.000	.002	.001	.080	.001	
	N	80	80	80	80	80	80

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4. Overall regression

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson	F	Sig.
0.741 ^a	0.549	0.518	28.62284	2.016	18.007	.000 ^b

Regression Analysis

This section presents results on the multiple regression analysis which is used to test the relationship of asset liability management variable (CAR, ROE, ROA LTD and Size) with LQR. It indicates that R is the multiple correlation coefficients which shows the relationship between the study variables. R can be considered one degree of the quality of the prediction of the dependent variable.

According to this study R is 0.741. Hence, it could be concluded that there is a positive linear correlation between Asset liability variables and Liquidity Risk (LQR). R square (R²) is the coefficient of determination which express the variation in the dependent variable due to the changes in the independent variables. R square (R²) is the proportion of variance in the dependent variable that can be explained by the independent variables. From the findings the value of R square is 0.549, an indication that there is a variation of 54.9% and there is a relationship between Asset Liability management variables and LQR. Liquidity Risk is attributed another variable.

Adjusted R Square takes into account the number of explanatory variables and the sample size (ex: it is adjusted based on the df). Adjusted R Square develops more relevant as an analytical tool when used in multiple regressions. According to this research adjusted R Square is 51.8%. Here Durbin Watson is 2.016.

ANOVA (F- value) indicates that the model explains the most possible combination of predictor variable that could contributed to the relationship with dependent variable. F and significant values are 18.007 and 0.000

respectively. It reflects that the F significance value is significant at 0.05 levels. Therefore, at 5% significant level, it can be statistically concluded that there is strong significant relationship between Asset liability management variables and LQR.

The multiple regression statistical models can be established in this way:

Model

$$LQR_{it} = \alpha + \beta_1 CAR_{it} + \beta_2 ROE_{it} + \beta_3 ROA_{it} + \beta_4 LTD_{it} + \beta_5 SIZE_{it} + e_{it}$$

$$LQR = 57.258 + 0.353CAR + 0.044ROE + 0.220ROA + 0.199LTD - 0.211SIZE + e$$

As stated in the multiple regression equation alpha value of the variable is 57.258. The Beta value of those variables are 0.353, 0.044, 0.220, 0.199, - 0.211 respectively. It is found that a unit increase in CAR leads to increase in LQR by 0.353. A unit increase in ROE leads to increase in LQR by 0.044. A unit increase in ROA leads to increase in LQR by 0.220. A unit increase in LTD leads to increase in LQR by 0.199. And also a unit increase in size of a bank leads to decrease in LQR by -0.211.

Table 5. Coefficients of Model

	B	Beta	T	Significance Level
Constant	57.258		-1.057	0.294
CAR	4.796	0.353	3.272	0.002
ROE	0.197	0.044	0.458	0.648
ROA	5.037	0.220	2.149	0.035
LTD	0.069	0.199	2.082	0.041
SIZE	-19.942	-0.211	-2.245	0.028

This table shows that there is a positive relationship between CAR, ROE, ROA, LTD and LQR. At the same time there is a negative relationship between Size and LQR.

According to the above table the Coefficients having p-values less than alpha, it is statistically significant. Thus all of the P values for CAR, ROA, LTD and SIZE are less than 0.05; therefore, all of these are statistically significant while ROE is more than 0.05; therefore, this is not statistically significant.

Test of hypothesis

Hypothesis H₁ test results

The beta coefficient of CAR is 4.796. This coefficient illustrated that there is a positive correlation between CAR and LQR. If CAR of the bank increase LQR also increase. The beta coefficient of CAR and LQR is noted 0.353. It is in line with the expected direction. T statistic is 3.272 and significant 0.002 respectively. It reflects that the value is significant at the level of 5%. Hence the significant value of CAR (P value=0.002) is less than the test alpha value 0.05. Therefore, accept the H₁. It can be statistically concluded that CAR has a positive significant relationship with LQR.

Hypothesis H₂ test results

The beta coefficient of ROE is 0.197. This coefficient illustrated that there is a positive correlation between ROE and LQR. If ROE of the bank increase LQR also increase. The beta coefficient of ROE and LQR is noted 0.044. It is in line with the expected direction. T statistic is 0.458 and significant 0.648 respectively. It reflects that the value is not significant at the level of 5%. Hence the significant value of ROE (P value=0.648) is higher than the test alpha value 0.05. Therefore, reject the H₂. It can be statistically concluded that ROE has no significant relationship with LQR.

Hypothesis H₃ test results

The beta coefficient of ROA is 5.037. This coefficient illustrated that there is a positive correlation between ROA and LQR. If ROA of the bank increase LQR also increase. The beta coefficient of ROA and LQR is noted

0.220. It is in line with the expected direction. T statistic is 2.149 and significant 0.035 respectively. It reflects that the value is significant at the level of 5%. Hence the significant value of CAR (P value=0.035) is less than the test alpha value 0.05. Therefore, accept the H₃. It can be statistically concluded that ROA has a positive significant relationship with LQR.

Hypothesis H₄ test result

The beta coefficient of LTD is 0.069. This coefficient illustrated that there is a positive correlation between LTD and LQR. If LTD of the bank increase LQR also increase. The beta coefficient of LTD and LQR is noted 0.199. It is in line with the expected direction. T statistic is 2.082 and significant 0.041 respectively. It reflects that the value is significant at the level of 5%. Hence the significant value of LTD (P value=0.041) is less than the test alpha value 0.05. Therefore, accept the H₄. It can be statistically concluded that LTD has a positive significant relationship with LQR.

Hypothesis H₅ test results

The beta coefficient of size is -19.942. This coefficient illustrated that there is a negative correlation between Size and LQR. If Size of the bank increase LQR will decrease. The beta coefficient of Size and LQR is noted -0.211. It is in line with the expected direction. T statistic is -2.245 and significant 0.028 respectively. It reflects that the value is significant at the level of 5%. Hence the significant value of Size (P value=0.028) is less than the test alpha value 0.05. Therefore, accept the H₅. It can be statistically concluded that Size has a negative significant relationship with LQR.

Conclusion & recommendations

Conclusion

Asset liability management function has a key role in managing liquidity risk and among other consist of facilitating; co-ordinating, communicating and controlling

risk, planning undertakes, maturity analysis of assets and liabilities to identify liquidity gaps and ensures that the bank's risk lies within parameters set by the board.

Banks' liquidity needs depend significantly on the financial position structure, product mix, and cash flow profiles of both on and off financial position obligations which without efficient management can result into banks facing adverse operational and financial problems such as decline in investor confidence, panic withdrawals and daily operation troubles. Hence, banks attempt to control asset liability management factors such as capital adequacy ratio, return on equity, return on assets, loan to deposit ratio and size of commercial banks by balancing cash inflows and outflows. According to this study the regression analysis showed that the liquidity risk of the bank 54.9% depend on the asset liability management variables of the banks. Therefore, the findings of the analysis conclude that the asset liability management have an effect on the liquidity risk of Sri Lankan domestic commercial bank.

This study investigated the effect of Capital adequacy ratio, Return on equity, Return on asset, Loan to deposit ratio and Size on liquidity risk in commercial banks context from 2009 to 2016. The results of this study indicates that Capital adequacy ratio, Return on asset, Loan to deposit ratio and Size have a significant effect on the Liquidity risk. Return on equity has not a significant effect on Liquidity risk.

There is need for bank treasuries, risk managers and asset liability committees to implement a robust and comprehensive balance sheet management solution to meet the evolving financial needs of the bank while taking into consideration the emerging liquidity risks arising from the banks business expansion and technology.

There is need for the bank management and staff to take cognizance of the fact that

management of liquidity risks must not be left to the asset liquidity management committee but is for all the participants in the organization. However, the management and board of directors must take the lead and continuously develop proactive policies and communicate the same consistently so as to ensure that every employee and manager buys into the process of asset liquidity management.

Recommendation

There is need for commercial banks to place greater emphasis on developing an integrated view of risk across all the risk types and the banks operational areas while ensuring that the asset management committee introduces and implements tighter regulations and reporting requirements with tighter capital requirements and symmetrically greater liquidity creation.

There is need for the bank to regularly train its employees on the various balance sheet risks and how they can be managed especially in the changing business environment in which the organization strives to be competitive in the marketplace and at the same ensure that it's profitable from its business operation. Employee training must be laced with efficient planning and monitoring process so as to ensure that both the risk management objectives and those of the overall organization are met.

Management needs to continuously develop, implement proactive, efficient and effective liquidity management strategy that allows the institution to monitor and measure expected daily gross liquidity inflows and outflows, manage and mobilize collateral when necessary to obtain intra- day credit, identify and priorities time specific and other critical obligations in order to meet them when expected; settle other less critical obligations as soon as possible and control credit to customers when needed.

Implication and Future research

This research study was limited to data collected from banks, however there are many other financial institutions and providers who were relevant to the study such as Microfinance institutions (MFIs) but were not covered. Since the study tested only the banking institutions, other financial institutions should be studied in order to compare the results.

The role of asset liability committees has grown in importance in the management of balance sheet, liquidity risks and in the implementation of liquidity risk management strategies. Hence, there is need for future research on the role of this important committee with a view to coming up with recommendation to strengthen the committee's role in the bank institutions.

Future research can be conducted on the factor that influence the liquidity levels of commercial banks in Sri Lanka. Future research should be conducted based on categories of demographic characteristics such as bank ownership (public, private, and foreign) and or size of the bank among others.

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