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Review Article

Credit Risk Management and Bank Performance: With Special Reference to Specialized Banks in Sri Lanka

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Abstract

The adoption of credit risk management is becoming a crucial factor for every bank. The objective of this study identifies the relationship between the credit risk management determinants revealed by banking soundness index indicators CAMEL (Capital adequacy, Assets quality, Management efficiency, Earnings, Liquidity) on the performance of the License Specialize banks in Sri Lanka. This study is based on secondary data from each bank annual reports. The data were collected from six development bank among seven development banks in Sri Lanka. The sample was selected from the population based on the availability, convenience method, and reliability of data over the set period. The panel data of a sixteen-year period from 2000 to 2016 from the selected banks, were used to examine the relationship between credit risk management and performance. The Return on equity is used as a performance indicator and Capital adequacy and Asset quality were used as indicators of credit risk management. The study used multiple regression to analyze the data. With these findings, it revealed there is a strong impact of the CAMEL components on the financial performance of specialized banks in Sri Lanka. As per the findings of analysis Capital Adequacy, and Asset quality has a negative significant relationship between bank performances of ROE. This study also documented that there is a significant relationship between credit risk management by CAMEL Indicators and the financial performance of specialized banks in Sri Lanka. Therefore, this study suggests that the CAMEL model can be used as a proxy for credit risk management in the context of License Specialize banks Sri Lanka.

Keywords: Credit Risk Management; CAMEL Rating System; Financial Performance; Licensed Specialized Banks; Sri Lanka

Introduction

This study analyzed that the relationship on credit risk management on the financial performance of selected Specialized banks in Sri Lanka by examining their relationship between credit risk management determinants reflected by banking soundness index indicator CAMEL (capital adequacy, assets quality, management

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efficiency, earning and liquidity) and financial performance of the banks. Risk management has played a vital role in financial institutions. It involves identification, measuring, monitoring and controlling risk to ensure the maximization of firm value and shareholders wealth. Risk can arise from the internal and external environment. Modern risk management practices started after 1955, 1970 financial institutions consider risk management as the core function of the firm (Dionne, 2013). According to Dionne, (2013) financial institutions have been estimated total risk including 80% credit risk, 15% operation risk and 5% market risk. Madushani & Madurapperuma (2016) have recognized that three broad categories of risks the banks can be faced such as credit risk, market risk, and operational risk. Das & Ghosh, (2007) have emphasized that financial capability has a significant role in a particular country economic strength as its failure can be disrupted the economic development of the country. Financial performance is the company's strength to produce new resources, from day-to-day operation over a particular period and net revenue and cash from operation device it. Aktan and Bulut, in 2008 have exposed that financial capability can be separated into traditional measures and market-based measures. Throughout the period 1980s and 1990s when the financial and banking issues have become worldwide, new risk management banking techniques arisen in worldwide. To be able to achieve the different types of risk, one has to describe them before one can achieve them. The risks that are most appropriate to banks, which are credit risk, interest rate risk, liquidity risk, market risk, foreign exchange risk, and solvency risk, etc. Risk management is rising the human activity which incorporates recognition of risk, risk assessment, developing strategies to achieve it and justification of risk by using managerial possessions (Appa, 1996) whereas credit risk is the risk of loss due to debtor's non-payment of a loan or other line of credit (either the principal or interest or both) (Campbell, 2007). The default rate is the possibility that a borrower will default, by failing to repay principal and interest in timely granted terms and conditions. A bank is a

supplier of financial services, including issuing money in various forms, receiving deposits of money, lending money and processing transactions and creating credit (Campbell, 2007). Credit risk management is a very important function of banks as it is an integral part of their loan process. It maximizes or minimizes bank risk, adjusted the risk rate of return by maintaining credit risk exposure to shield the bank from the adverse effects of credit risk. Most of the banks are investing a large number of funds in credit risk management modelling to minimize credit risk. The case in point is the Basel II accord. There is a need to investigate whether this investment in credit risk management is liable to the banks (Kodithuwakku, 2015). The Sri Lankan financial institutions can be divided into three parts, which are License Commercial Banks (PCBs), License Specialized Banks (LSB) and Registered Financial Companies (RFCs). License Specialized Banks (LSB) has been the most important financial institutions in the Sri Lankan financial sector. LSBs have accounted for 8.0% of the total financial sector assets and 16% of the banking system assets (Central Bank of Sri Lanka, 2016). Seven LSB banks operated in the banking industry in Sri Lanka, which are National Saving Bank (NSB), State Mortgage & Investment Bank (SMIB), Regional Development Bank (RDB), Housing Development & Finance Corporation (HDFC), Sanasa Development Bank (SDB), Sri Lanka Serving Bank (SLSB), and Lanka Puthra Development Bank (PDB).

The Central Bank of Sri Lanka (CBSL) has been operated as the regular authority of all financial institutions under the Banking Act, the Monetary Law Act, and the Exchange Control Act. The banking industry is the dominant sector in the Sri Lankan economy (Central Bank of Sri Lanka, 2016). It significantly contributes to the economic and infrastructure development in Sri Lanka. According to Central Bank's statistics in 2016, 68.8% of total financial assets which represent in the banking sector include 50.5% of LCBs, 8.0% of LSBs and 10.3% of CBSL. LCBs and LSBs asset base increased from 56.4% to 57.6% respectively in 2016 and the end of 2015 (Central Bank of Sri Lanka, 2016). At presently 32 local and foreign banks have been operated, which

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include 25 LCBs and 7 LSBs. Total banks outlets in Sri Lanka were 6,594 as of the end of 2016. This study attempts to explore the relationship between credit risk management on the performance of the banks particularly in the Sri Lankan context, with special reference to LSBs. In literature Ogboi & Unuafe, (2013)it is evident that most of the researches were focused on the performance of the banking sector in the US and other developed countries and very little researches have been done about the performance of the banking sector in developing countries (Sathye, 2003). Bhattacharyya, Lovell & Sahay (1997) had studied Indians banks performance. When Sri Lanka is concerned Weerasingha and Perera (2013) examined the impact of bank-specific and macroeconomic determinants on the profitability of commercial banks in Sri Lanka. Perera, Skully& Wickramanayake (2006) assessed the banking competition in Sri Lanka. Seelanatha (2010) has investigated the performance of Sri Lankan commercial banks. Wanniarachchige and Suzuki (2010) have analyzed the cost efficiencies of Sri Lankan banks. In addition, very few studies have focused on the Sri Lankan banking sector (Seelanatha, 2007 & 2010; Swarnapali, Kumari &Pathmasiri, 2011). Most Sri Lankan studies have focused on commercial banks, but they have not focused on the impact of credit risk management on their performance. This study, therefore, seeks to investigate the relationship of credit risk management on a bank's financial performance of License Specialized banks in Sri Lanka**.**

Review of Literature

The strength of the financial system has a vital role in the country (Das & Ghosh, 2007) as its failure it can affect the economic development of the country. Financial performance is the capability to create new resources for the firm by using their day-to-day business operation activity by creating income and cash over a given period. Aktan and Bulut, 2008 financial performance is divided into two parts, which are traditional and market-based measures. Banks collecting funds from individual and business depositors and makes out loans to business, individuals, and

small and medium scale businesspeople and fulfil the government requirement. Meantime major assets of banks are loans and purchasing bonds, security while primary liabilities are made of deposits. Most of the banks' balance sheets loans are representing major assets of banks, but the loans come with risk. If the banks face difficulty to recover given loans according to terms and conditions, the bank will be in a crisis if those loans are not repaid (Megeid, 2013). Effective financial intermediation is a core condition for a country's economic development. Said and Tumin (2011) reveal that the banks, as the critical part of the entire financial system, plays a vital role in a country's economic and infrastructure development. The performance of banks depends on the strengths, weaknesses, threats, and opportunities they are facing. Those factors arising from both external and internal environments events of the firm. Financial institutions and banks need a certain standard to make decisions and evaluate the decisions made in the rapidly growing financial market. Among these, the standard risk is the most significant one. The successfully managed risk is an essential tool to increase banks profitability (Öker, 2007). The most important risk is banks facing credit risk, which is arising from loans that are not repaid. Credit risk can be identified as two primary components (Yurdakul, 2014) which are systematic and unsystematic credit risk. Systematic risk arising from the external environment, which is a political, economic condition, social life, financial market condition, and securities, traded in the market. Unsystematic credit risk is inherent from internal factors, which are management, technological development, new inventions, and change consumer preferences. Financial, management, operational and industrial risks are identified as unsystematic risks (Tekirdag, 2009). Systematic risk can be classified as political risk, market risk, inflation, interest rate, and exchange rate risk. Alam and Musukujjaman in 2011 researched Bangladesh banks. They have examined what type of risk banks face, procedures and techniques used to minimize the risk. The examination reveals credit, market, and operational risk are the major risks that banks

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face which are managed through three levels of the management system. The first one is the Board of directors performs the accountability of the main risk oversight, the second is Executive committee monitors and finally Audit committee review all the activities of banking operations. Kargi, (2011) has evaluated the impact of credit risk on the profitability of Nigerian banks according to his findings, credit risk management has a significant impact on the profitability of banks. Felix and Claudine (2008) have revealed the relationship between bank performance and credit risk management. According to findings of a return on assets and return on equity both measuring profitability were inversely related to the ratio of non-performing loan to the total loan of the firm thereby leading to a decline in profitability.

Hosna, Manzura & Juanjuan (2009) have studied the Sweeden banks about impacting the level of credit risk management on profitability. According to finding credit, risk management affects banks profitability. Takang&Ntui (2008) have revealed there is a significant relationship between bank performance and credit risk management. Better credit risk management outcome is good bank performance. According to their findings, the credit variable is positively related to profitability and liquidity risk is no impact on the profitability of banks. Öker (2007) has revealed that risk impacts on the firm's capital earning or achievement of its objective through firm current and future events, expected or unexpected may harm the firm. Adeusi et al., (2014) have focused on the association between risk management practices and bank performance in Nigeria. According to their findings, there is an inverse relationship between financial performance and doubt loans, capital adequacy ratio is a positive and significant relationship. Finally, they reveal there is a significant relationship between banks performance and credit risk management. According to Rathnasiri (2016), risk management practices heavily affect the financial performance of banks. Poudel in 2012 has conducted a study about Nepal commercial banks. According to his findings, credit risk management is an important predictor of bank financial performance hence the success of bank performance depends on risk management. The study also reveals the default rate as one of the risk management indicators which is a major predictor of the bank financial performance as well capital adequacy ratio a significant factor for performance. Credit risk management is a crucial factor in performance since it has a significant relationship with bank performance. Credit risk management has a very significant contribution to the bank performance meantime bank need to more emphasis on risk management. Cooper, Jackson, and Patterson (2003) have revealed that credit risk was affecting the health of bank loan portfolios and it affects the bank's performance. Miller and Noulas (1997) have revealed there are a negative relationship between credit risk and bank profitability. Swarnapali, (2014) has studied about firm's specific determinants and financial performance of Commercial banks of Sri Lanka. According to her findings, there is a negative relationship between credit risk and performance. Rufai (2013) has studied Nigeria banks by using 2006-2010 data of Union bank. According to his finding, there is a significant relationship between bank performance (profitability) and credit risk management. Better credit risk management results in better bank performance. Crucially important that banks practice careful credit risk management and safeguarding the assets of the banks and protect the investors' interest. According to his findings, banks use various credit risk management tools, techniques and assessment models to control their credit risk for one main objective to reduce the amount of default loans which is a principal cause of bank failure. Also, he reveals banks with good credit risk management policies have lower default ratios and higher interest income and banks with higher profit potentials are helpful to absorb credit losses.

Methodology

In this research, I had adopted the Positivistic research approach for my study. A positivistic concept which is based on the study of science. This philosophy undermines that reality is stable and it cannot be changed as well as it believes the reality can only be observed and describe (Morris, 2006). It holds the generalization

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principle and explains that reality can only be experimented, expanded and tested (Coolican, 2013). The quantitative methodology aims to measure, quantify or find the extent of a phenomenon. Kumar (2018) describes the quantitative methodological approach as being a structured approach, in which all aspects of the research process are decided upon before data collection begins. Therefore, in my study use positivistic research approach by using secondary data. The research context is the Sri Lankan banking sector, the target population License Specialized banks in Sri Lanka sample was selected six state and private License Specialized banks in Sri Lanka. The data was collected availability and convenience method from each bank. The researcher used secondary data, which was collected from the respective banks an Annual report for the period of 2000-2016. The data analysis method was based on Pearson correlation analysis and multiple OLS regressions to examine the relationship between independent and dependent variables.

Data Screening and Reliability Testing

The survey is being done among six development banks of Sri Lanka. This analysis has been totally based on the secondary data which has been collected from each bank annual reports. According to (Hair et al., 2017) measurement model signifies how each construct is taken into measure, while the Structural model specifies how the components are related to each other in the structural model. Regarding the software used in data analysis in this chapter, all the parts used SPSS version 21. Preparing data for the analysis to get the results of the study is called data screening. It has been done through SPSS statistical package using a number of steps which is necessary for ensuring that data are accurately fed to the software, free from missing values, outliers, and suspicious response. 4.3 Reliability testing Reliability discusses how the data reliable and it brings the quality evidence of the collected data of G LoBiondo-Wood et. al (2014). Further reliability provides the scientific foundation on what is studying on and it evaluates the prediction and the criteria measures of findings of the study (Sackett, Putka& McCloy, 2012) Simply, reliability opens the path for the analysis. To reach the reliability it should indicate the value more than 0.500 of reliability test. Then it shows the stability of the data if the study has been done a number of times it could give the same results. Simply, the reliability says that the study gives stable and consistent results or not, but validity may vary with the contributors. It shows significant internal consistency coefficient by indicating Cronbach's Alpha for the 5 items based on which is 0.600 and lighten that the reliability is highly significant. Cronbach's alpha generally increases when the correlations between the items increase, hence it shows a high correlation of variable 0.780 of Cronbach's alpha on its items and it's clear that there are 5 items based on this result.

Correlation Matrix

Correlation matrix will indicate the direction (whether it is positive or negative), strength, and Significance of the bivariate relationships of all the variables in the study.

Table 1: *Correlation Matrix*

		CA	NPL	ROE
CA	Pearson	1		
	Correlation			
NPL	Pearson	0.866[**]	1	
	Correlation			
ROE	Pearson	- 0.245[*]	- 0.236[*]	1
	Correlation			

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Hypothesis 1

H1a- There is a significant relationship between capital adequacy and Return on Equity inLicense Specialize Bank

There is a significant value (-0.245) between the dependent variable return on equity and capital adequacy. That means there is a significant negative relationship between Return on equity and capital adequacy. It has shown that the Alternative hypothesis has been accepted.

Hypothesis 2

H1b- There is a significant relationship between the non-performing loan and return on equity in License Specialize Bank

There is a weekly negative significant value (-0.236) between non-performing loan and return on equity. That means there is a negative significant relationship between the non-performing loan and return on equity. It has revealed that the Alternative hypothesis has been accepted.

Regression Analysis

Table 2 shows R, R-squared, adjusted R-squared, and the standard error, R is the correlation between the two variables that observed and predicted values of the independent variables and dependent variables. These values should be in -1 and 1. Here R values 0.542 indicates that means there is a strong impact between CAMEL components and financial performance of banks. R-squared is the proportion of variation ROE explained by the regression analysis. R-squared low indicates that the model does not fit with data. Adjusted R-squared tries to accurate R-squared to more closely replicate the goodness of fit of the model in the population.

The use R Squared to assist the researcher to decide which model is best. Here adjusted R-value 0.623 suggests that that CAMEL components fit the model by 62 % approximately. The Durbin-Watson statistic will always have a value between 0 and 4. A value of 2.0 means that there is no autocorrelation detected in the sample. Values from 0 to less than 2 indicate positive autocorrelation. Value from 2 to 4 indicates negative autocorrelation.

Table 2: *Statistical Analysis*

Mode	R	R square	Adjusted Square	Std. the error of the estimate	Durbin - Watson
1	0.542	0.623	0.601	6.18974	2.012

Contribution

Based on an analysis of all independent and dependent variables, it has been shown following structure as a contribution. Because all hypothesis is accepted that means these variables contributed to the performing of the organization. The study showed that credit risk management measured by CAMEL indicators has an impact on the financial performance of specialized banks in Sri Lanka. Therefore, this study concludes that the CAMEL model can be used as a proxy for credit risk management in Sri Lanka. This study also documented that there is a significant relationship between credit risk management by CAMEL indicators and financial performance of specialized banks in Sri Lanka. Simply it can draw as follow with the conceptual framework.

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Figure 1: *Conceptual Framework*
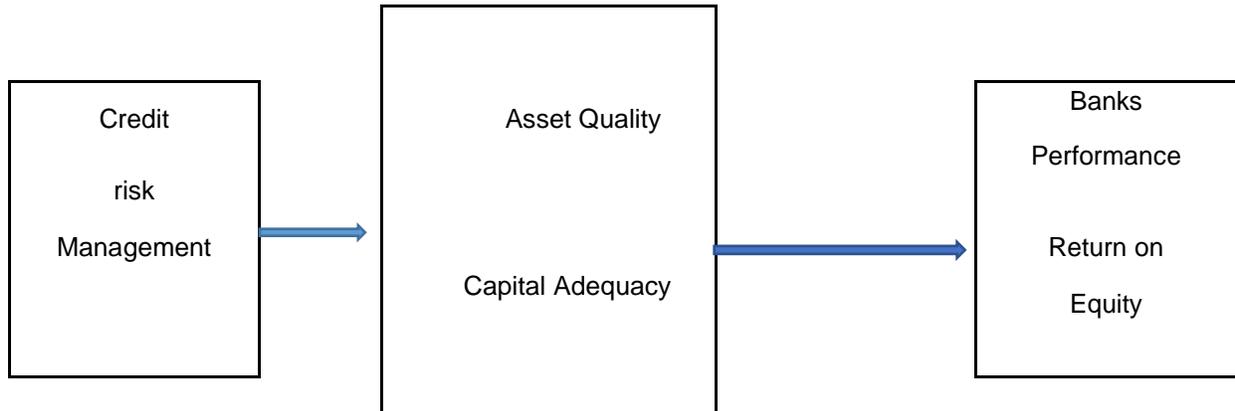
Approaches to Research Question and Objectives

The first question which is stated, **"**Is there any relationship between credit risk management determinants and financial performance of LSB in Sri Lanka?" that means three variables are a significant negative relationship to the credit risk management and financial performance of the organization. Out of one variable is a significant positive relationship of the financial performance of the organization then their performance levels are varied with other competitive organization. The second question stated that when considering the objectives of the research, it stated as "Does a credit risk management impact on the financial performance of LSB in Sri Lanka?" Which is mentioned as specifications of the credit risk management are an impact on the financial performance on their operation and managerial decision making and economic situation in Sri Lanka. Then as an organization, it can assist to the identification of relationship with credit risk management and financial performance of the organization which stated as "To identify if there existing a relationship between the credit risk management determinants and the performance of License Specialize Bank in Sri Lanka"

Discussion:

Since credit risk management, in general, has a very significant contribution to the bank performance as stated in the above model- the banks are advised to put more emphasis on risk management. In order to reduce risk on loans and achieve maximum performance, the banks need to allocate more funds to default rate management and try to maintain just optimum level of capital adequacy and the Assets quality. The Selection of the staff for the entire process is important because none of the factors like assets quality and liquidity can be determined through systems. The relationships Managers who initiate the business need to have the correct attitude and drive and also the experience to guide well thought out plans. Whilst it is their function to market business, they should be adequately trained to identify and evaluate the risks. As they had rewarded according to the profitability of their respective portfolios, they are responsible for the timely identification and mitigation of any risk that could end up in loss situations. Continuous upgrading of skills is mandatory to keep a motivated staff and to maintain a quality portfolio. More ever following elements need to be more focused in as - credit risk strategy and significant credit risk policies should be designed and reviewed annually by BOD. This is because that the Requirement for every extension of credit, other than small value consumer retail loans to be approved by at least two authorized credit officers, one of whom must be an officer from business and another invariably from an independent credit risk Management department (CRMD). This will be helping to eliminate the

capital adequacy risk. In order to avoid the Earning capacity risks - Every obligor and facility should be assigned a risk rating. Also, Obligor, concentration, industry or geography should set credit risk limits. More ever credit function should be made responsible to report the comprehensive set of credit risk data into the independent risk system. Credit risk management committee or credit control committee should follow with responsibilities. Also this committee should, formulate clear credit policies described by the regulator and need to be responsible for the setting up of CRMD which should lay down risk assessment systems, monitor quality of loan portfolio and prudential limits set by CPC, identify problems and correct deficiencies, develop management Information System (MIS) and undertake loan review/audit. In order to manage the liquidity and its impact on bank performance – banks should manage scientific systems to price the credit risk, which should have a bearing on the expected probability of default (PD); and Establish the maximum expected loss in each product line and linking the capital to this loss, thus making it possible to compare products of different risk levels. Loan review mechanism (LRM) should be implemented for constantly evaluating the quality of the loan book and bringing about qualitative improvements in credit administration. The study recommends that specialized banks in Sri Lanka should also try to keep their operational cost low as this negates their profits margin thus leading to low financial performance. This is depicted by the strong effect of earnings on financial performance. The study suggests that a further study can be done on the impact of credit risk management by use of CAMEL indicators on the financial performance of other institutions in Sri Lanka. This is to ascertain if the CAMEL model can be applied as a proxy for credit risk management on the other financial institutions in the Sri Lankan market.

Conclusion:

There is clearly vast scope for more research that can inform an understanding of how the CAMEL model is structured, how it attaches with the financial performance and what components of CAMEL model that can be taken to account. Also,

there are some other factors found which also affect the banks' financial performance which is not focused on this study. One of the main factors is the regulations and restrictions from the government bodies and regulations of Sri Lanka. Some other factors are the size of the bank, ownership status, operating expense, cost decisions of corporate management, and composition of banks' assets and liabilities. Therefore, the further investigation is required to examine what are the factors other than the CAMEL model and the credit risk management of the banks.

Conflicts of Interest:

The authors declare that the research review was conducted in the absence of any commercial or economic associations that could be construed as a potential conflict of interest.

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