Credit Management Practices and Bank Performance: A Case of Nepalese Commercial Banks

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Abstract

The study examines the effect of credit management practices on the performance of Nepalese commercial banks. Return on assets and return on equity are selected as the dependent variables. The selected independent variables are capital adequacy ratio, non-performing loan ratio, client appraisal, credit term, bank size, liquidity ratio. The study is based on primary as well as secondary data. The primary source of data is used to assess the opinions of the respondents regarding client appraisal and credit terms in context of Nepalese commercial banks. To achieve the purpose of the study, structured questionnaire is prepared. Similarly, secondary data were collected for the study period from 2015/16 to 2020/21, leading to a total of 179 observations. The secondary data were collected from Banking and Financial Statistics published by Nepal Rastra Bank, publications and websites of Nepal Rastra Bank (NRB) and annual reports of the selected commercial banks. The correlation coefficients and regression models are estimated to test the significance and the effect of credit risk management on the performance of Nepalese commercial banks.

The study showed that capital adequacy ratio has a positive impact on return on assets and return on equity. It means that an increase in capital adequacy ratio leads to increase in return on assets and return on equity. Similarly, non-performing loan has a negative impact on return on assets and return on equity. It means that an increase in non-performing loans leads to a decrease in return on assets and return on equity. Moreover, client appraisal has a positive impact on return on assets and return on equity. It means that increase in credit risk leads to increase in return on assets and return on equity. Furthermore, credit term has a positive impact on return on assets and return on equity. It indicates that better credit term leads to an increase in return on assets and return on equity. Similarly, bank size has a positive impact on return on assets and return on equity. It means that greater bank size lead to an increase in return on assets and return on equity. Likewise, liquidity ratio has a positive impact on return on assets and return on equity. It means that a better liquidity ratio leads to an increase in return on assets and return on equity in Nepalese commercial banks.

Keywords: return on assets, return on equity, capital adequacy ratio, non-performing loan, liquidity ratio, client appraisal, bank size, credit term.

1. Introduction

Credit risk is the probability of a financial loss resulting from a

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borrower's failure to repay a loan. According to Asselbergh (2002), credit risk is when a lender lends money to a borrower but may not be paid back. The study indicated financial assistance for small and medium size enterprises is often problematic even in developed western economies. In addition, Credit risk is an investor's risk of loss arising from a borrower who does not make payments as promised (Aliija & Muhangi, 2017). Similarly, Nikolaidou & Vogiazas (2014) defined credit risk management as the combination of coordinated tasks and activities for controlling and directing risks confronted by an organization through the incorporation of key risk management tactics and processes in relation to the organization's objectives. Likewise, Adamu *et al.* (2014) defined microfinance institutions and other non-financial institutions as small forms of credit to individuals and small and medium size enterprises (SMEs) who may not have collateral to request for loans from commercial banks. Likewise, Credit risk is the possibility that the actual return on an investment or loan extended will deviate from that, which was expected (conford, 2000).

Petersen & Rajan (1995) stated that expanding lending in the short-term boosts earnings, thus the banks have an incentive to ease their credit standards in times of rapid credit growth, and likewise to tighten standards when credit growth is slowing. Similarly, Seppälä (2004) stated that more complex a risk type is the more specialized, concentrated and controlled its management. Furthermore, Credit risk management practices have never been successful to eliminate the human element in making decisions about controlling risk (García *et al.,* 2013). However, Credit risk management is an approach that is well structured to manage any uncertainty through risk evaluation, strategies development with an aim of managing and mitigating risk using the available resources to managers (Afriyie and Akotey, 2012). According to Adekunle *et al.* (2015), credit risk management has a significant effect on financial performance of commercial banks and further indicated that maintaining minimum level of non-performing loans vis-a-vis provision for loans and advances will enhance financial performance through its positive effect on return on equity (ROA). Likewise, Li and Zou (2014) found that management of credit risk measured using non-performing loan ratio has a significant impact on both return on assets and return on equity whereas car had insignificant impact on return on equity and return on assets.

According to Psillaki *et al*. (2010), effective management of credit risk exposure banks not only support the viability and profitability of their own business but also contribute to systemic stability and to an efficient allocation

of capital in the economy. According to Adegbola *et al*. (2023), credit management has no significant effect on loan default, with both credit appraisal and credit monitoring exhibiting negative but non-significant effects on loan default, and credit collection policy exhibiting positive and significant effect on loan. Safest borrower is the customer whose credit rating is high and who has not defaulted to pay a loan from the digital firms (Nthiga & simiyu, 2021). Similarly, Alhassan & Islam (2021) indicated credit management strategies and financial performance of industrial goods sector. The study found that the credit risk assessment, debt recovery strategy and receivable collection policy sub-variables have positive and statistically significant impact on the liquidity sub-variables - ability to pay, level of bad debt, and cash inflow. However, Gichuhi & omagwa (2020) explored the credit management and loan portfolio performance of savings and credit cooperative societies. The study further concluded that a change in loan diversification leads to a change in loan portfolio performance. Furthermore, Kolapo *et al.* (2012) examined an empirical investigation into the quantitative effect of credit risk on the performance of commercial banks. The study revealed that the effect of credit risk on bank performance measured by the Return on Assets of banks is cross-sectional invariant.

Saeed and Zahid (2016) examined the impact of credit risk on profitability of the commercial banks. The study showed that credit risk indicators has a positive association with profitability of the banks. Gakure *et al*. (2012) investigated the effect of credit risk management techniques on the performance of unsecured bank loans employed commercial banks in Kenya. The study concluded that credit approval guidelines and monitoring of borrowers affect the performance of unsecured bank loans to a great extent. Moruf (2013) investigated the evaluation of the Nigerian microfinance banks credit administration on small and medium scale enterprises operations. The study showed a positive and significant relationship between microcredit delivery service of selected microfinance banks (MFBs) and small and medium-sized enterprises (SMEs) performance. Likewise, Chijoriga (2011) found that credit risk is most critical and expensive risk associated with financial institutions. The study also revealed that its impact is quite significant compared to any other risk associated to the banking sector as it is direct threat to solvency of the institution. However, Ahmed & malik (2015) concluded that client appraisal has a positive and significant impact on the limited partnership. The study defined the determinants of credit risk management and their relationship with the performance of commercial banks

in Nepal (Bhatt *et al.*, 2023).

Elemu (2021) concluded that credit management practices and loan repayment management are among the critical factors influencing profitability at commercial bank branch level. Similarly, Savings and credit cooperative organizations credit requirement refers to the timely manner with which borrowers are meeting their contractual obligations (Alhassan *et al*., 2014). Banks may be forced to adjust their credit policy in line with other banks in the market where a herding behavior is practiced by banks (Altman, 2002). The study showed that low loan approval rate was likely due to credit rationing of the banks. However, Bagchi and Ennew (2004) argued that credit procedures should be updated every year because, like all investments, debtors are affected by the changing economic climate in the market place. The study found that environmental risks are generally taken into account in the credit risk management process, but that there is still a lack of a systematic and quantitative integration of these kinds of risk in all phases of the credit risk management process (Thompson, 1998). Similarly, Marshal and Onyekachi (2014) found that there is a positive and significant relationship between ratio of non-performing loans to loans and advances and commercial banks performance (return on assets).

Muhammad *et al*. (2020) explored that bank is trying to help the customer by granting rescheduling facility, which help to extend the period of loans and financing in order to decrease the amount of monthly instalment. According to Muthoni *et al*. (2020), debt collection policy and lending policy have positive significant effect on loan performance of commercial banks in Kenya. The study also concluded that commercial banks loan performance could be largely attributed to the efficiency of the credit management practices put in place at the institutions. Likewise, Okpala *et al.* (2019) concluded that credit management strategies measured in terms of the credit risk assessment, debt recovery strategy, and credit collection strategy have positive and significant influence on liquidity and profitability of quoted chemical and paints manufacturing companies. Similarly, Weber (2005) revealed that the credit business is still in an early stage of development though it is integrated in most banks in one way or another. Likewise, Agu & Basil (2013) revealed that increasing existence in the amount of bad doubtful debts in Nigeria commercial banks.

According to Nwanna & oguezue (2017), sound credit management heightens profitability and holds the financial strength of the deposit money

banks. The study revealed that credit management practices have significant positive influence on the financial performance of first bank (Olabamiji & Michael, 2018). Similarly, Edwin & omagwa (2018) concluded that unit increase in credit risk control, client appraisal, and collection policy and terms of credit results to better financial performance of micro finance institutions. According to Adedeji *et al.* (2018), credit management examined how financial institutions respond to credit facilities given to their customers and how the smallscale enterprises react to methods of credit management. The study found that inadequate loan supervision and monitoring is not a major cause of Small-scale Enterprises bad debt and also that credit management affects the performance of small-scale enterprises. Muritala & Taiwo (2013) evaluated the impact of credit risk management on bank profitability of some selected commercial banks in Nigeria. The study concluded that banks profitability is inversely influenced by the levels of loans and advances, and non-performing loans thereby exposing them to great risk of illiquidity and distress. Olalere & Ahmad (2015) indicated the effects of credit risk on profitability of commercial banks in Nigeria. The study revealed that there is a negative and significant relationship between non-performing loan ratio and the profitability.

In the context of Nepal, Kattel (2016) explored the risk measurement practices of Nepalese commercial banks. The study indicated that the Nepalese bankers are aware of the importance of various techniques to effectively identify the risk level. According to Timsina (2014), credit is an important link in monetary transmission as it finances production, consumption, and capital formation, which in turn affect economic growth. Likewise, Bhattarai (2016) stated that loans issued to lenders are subject to a default risk but the lenders still lend on understanding that the borrowers will gladly honor their repayment obligations without any default and not to become non- performing loans. Similarly, Risal & Poudel (2020) found that the concern of government toward regulating banking finance insurance and securities in parameters affecting credit risk such as capital adequacy ratio, non–performing loan ratio and cash deposit receipt is commendable.

Gauchan & Upadhyaya (2020) examined the evidence of credit portfolio management and its relationship with banks' financial performance. The study found that risk is inherent in all aspect of banking business operations. Moreover, Paudel *et al.* (2013) found various parameters pertinent to credit risk management as it affects banks financial performance. Likewise, the study also revealed that all these parameters have an inverse impact on banks

financial performance and the default rate is the most predictor of banks' financial performance. However, Poudel (2018) indicated the impact of credit risk on profitability of commercial banks in Nepal. The study revealed that non-performing loan ratio has the significant negative impact on profitability of commercial banks in Nepal. The study also found that credit appraisal measurements have a significant effect on credit risk management. Likewise, Kattel (2015) found that credit risk techniques need to be standardized not only across borrowers but across institutions as well; credit losses need to be closely monitored but systems are not adequate to track the activist.

The above discussion reveals that the empirical evidences vary greatly across the studies concerning the impact of credit management practices and bank performance of commercial banks. Though there are above mentioned empirical evidences in the context of other countries and in Nepal, no such findings using more recent data exist in the context of Nepal. Therefore, in order to support one view or the other, this study has been conducted.

The main purpose of the study is to examine the impact of credit management practices and bank performance of Nepalese commercial banks. Specifically, it examines the impact of capital adequacy ratio, non-performing loan, liquidity ratio, bank size, client appraisal and credit term on return on assets and return on equity of commercial bank.

The remainder of this study is organized as follows. Section two describes the sample, data and methodology. Section three presents the empirical results and the final section draws the conclusion.

2. Methodological aspects

The study is based on both primary and secondary data. The primary data were collected from 179 respondents and secondary data were gathered from 16 Nepalese commercial banks from 2015/16 to 2020/21, leading to a total of 179 observations. The main sources of data include Banking and Financial statistics published by Nepal Rastra Bank, reports published by Ministry of Finance and the annual report of respective banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of commercial banks selected for the study along with the study period and number of observations.

Table 1

List of banks selected for the study along with the study period and number of observations

S.N.	Name of the banks	Study period	Observations
Public Banks			
1	Rastriya Banijya Bank Limited	2015/16 - 2020/21	6
2	Nepal Bank Limited	2015/16 - 2020/21	15
Joint Venture Banks			
3	Nabil Bank Limited	2015/16 - 2020/21	7
4	NMB Bank Limited	2015/16 - 2020/21	11
5	Himalayan Bank Limited	2015/16 - 2020/21	13
6	Everest Bank Limited	2015/16 - 2020/21	9
Private Banks			
7	NIC Asia Bank Limited	2015/16 - 2020/21	19
8	Global IME Bank Limited	2015/16 - 2020/21	12
9	Siddhartha Bank Limited	2015/16 - 2020/21	8
10	Nepal Investment Bank Limited	2015/16 - 2020/21	4
11	Prabhu Bank Limited	2015/16 - 2020/21	14
12	Kumari Bank Limited	2015/16 - 2020/21	12
13	Prime Commercial Bank Limited	2015/16 - 2020/21	12
14	Sanima Bank Limited	2015/16 - 2020/21	15
15	Nepal SBI Bank	2015/16 - 2020/21	7
16	Citizens Bank International Limited	2015/16 - 2020/21	15
Total number of observations			**179**

Thus, the study is based on the 179 observations.

The model

The model used in this study assumes that profitability depends on credit risk management. The dependent variables selected for the study are return on assets and return on equity. Similarly, the selected independent variables in this study are capital adequacy ratio, non-performing loan ratio, client appraisal, credit term, liquidity ratio and bank size. The following model equations are designed to test the hypothesis.

$$ROA = \beta_0 + \beta_1 CAR + \beta_2 NPL + \beta_3 CA + \beta_4 CT + \beta_5 LR + \beta_6 BS + \varepsilon_{it}$$

$$ROE = \beta_0 + \beta_1 CAR + \beta_2 NPL + \beta_3 CA + \beta_4 CT + \beta_5 LR + \beta_6 BS + \varepsilon_{it}$$

Where,

ROA = Return on assets as measured by the ratio of net income to total assets, in percentage.

ROE = Return on equity as measured by the ratio of net income to shareholder's equity, in percentage.

CAR= Capital adequacy ratio as measured by the ratio of equity to total assets, in percentage

NPL= Nonperforming loan as measured by the ratio of non-performing loan to total loans, in percentage.

CA = Client appraisal

CT = Credit terms

LR= Bank liquidity is measured as the ratio of total loan to total deposit, in percentage.

BS=Bank size is defined as the total assets, Log (total assets).

Client appraisal was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "Client appraisal considers the character and capacity of the customers seeking credit facilities" "Failure to assess customer's capacity to repay results in loan defaults" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.762$).

Credit term was measured using a 5-point Likert scale where the respondents were asked to indicate the responses using 1 for strongly disagree and 5 for strongly agree. There are 5 items and sample items include "Credit terms includes the agreement between client and bank about the structure of timings and repayment of loan", "Credit terms are evaluated by the looking at capital position" and so on. The reliability of the items was measured by computing the Cronbach's alpha ($\alpha = 0.729$).

The following section describes the independent variables used in this study along with hypothesis formulation.

Capital adequacy ratio (CAR)

Capital adequacy ratio is a measure of a bank's financial strength expressed by the ratio of its capital (net worth and subordinated debt) to its risk-weighted credit exposure in the form of loans. Iloska (2014) indicated that the strength and quality of capital influence bank profitability. Clearly, lower capital ratios imply higher leverage and risk leading to higher borrowing costs. Similarly, Jha and Hui (2012) showed that there is a significant relationship

between bank performance and credit risk management. Moreover, Gizaw *et al.* (2015) found a significant and positive relationship between loan loss provision and commercial banks performance on this study might indicates the presence of potential earning management activities by bank managers. However, Ezike and Oke (2013) showed that capital adequacy has a major positive impact on banks' performances because it has direct relationship with other key variables that affect performance. Furthermore, Kurawa and Garba (2014) found significant positive relationship between capital adequacy variable and financial performance of banks. In addition, Alshatti (2015) found no effect of the capital adequacy ratio on the financial performance of banks. The study showed that credit risk management and capital adequacy ratio have positive impact on financial performance. Based on it, this study develops the following hypothesis:

H_1: There is a positive relationship between Capital adequacy ratio and bank performance.

Non-performing loan ratio (NPL)

Non-performing loans ratio (NPL) has been used as the default rate on total loan and advances. Moreover, Alshatti (2015) found a positive effect of non-performing/ gross loans ratio on the financial performance of banks. Similarly, Kodithuwakku (2015) found an adverse impact of non-performing loans on the profitability. Likewise, Jha and Hui (2012) found a negative association between NPL ratio and ROA but the coefficient is statistically insignificant. The study revealed that negative relationship is expected between non-performing loan and bank's performance. Kithinji (2010) reveaed that the bulk of the profits of commercial banks is not influenced by the amount of credit and nonperforming loans suggesting that other variables other than credit and nonperforming loans impact on profits. Based on it, this study develops the following hypothesis:

H_2: There is a negative relationship between the non-performing loan and bank performance.

Client appraisal (CA)

Fredrick (2015) revealed the various procedures in credit management that will improve financial performance. Moreover, Aliija & Muhangi (2017) found that client appraisal helps micro finance institutions to improve loan performance, as they get to know their customers. These 5Cs considered in client appraisal are character, capacity, collateral, capital and condition. Similarly, Enoch *et al.* (2021) showed that microfinance banks need to

strengthen their credit risk control measures to increase their profitability. According to Gichuhi & Omagwa (2020), savings and credit cooperative organizations management need to improve on consideration of capital and personal assets contribution by prospective borrowers which was found to be weakly implemented. According to Kalu *et al.* (2018), credit risk identification and credit risk appraisal have a strong positive relationship on financial performance of MDIs, while credit risk monitoring and credit risk mitigation have moderate significant positive relationship on financial performance of MDIs. Likewise, Alhassan & Islam (2021) showed that credit risk management and client appraisal have positive impact on financial performance. Based on it, this study develops the following hypothesis:

H_3: There is a positive relationship between client appraisal and bank performance.

Credit term (CT)

Accoding to Ssekiziyivu *et al*. (2018), credit terms and borrowers may have to identify those MFIs and SACCOs that are ready to discuss credit terms if the microfinance industry in Uganda is to help in reducing poverty. Disney & Gathergood (2013) showed that individuals poor financial literacy are more likely to lack confidence when interpreting credit terms, and to exhibit confusion over financial concepts. Love *et al.,* (2007) suggested that the decline in aggregate credit provision is driven by the reduction in the supply of trade credit, which follows the bank credit crunch. The study showed that the base-stock inventory control policy continues to be optimal under an increasing schedule of finance charges related to payment date (Gupta & Wang, 2009). Moreover, Petersen & Rajan (1997) revealed that firms use trade credit relatively more when credit from financial institutions is not available. The study found strong empirical support for seven propositions linked to competitiveness, pricing, investment and financing, and weaker support for a number of other theoretically-derived motives for trade credit extension (Cheng & Pike, 2003). Based on it, this study develops the following hypothesis:

H_4: There is a positive relationship between credit term and bank performance.

Bank size (BS)

Bank size as measured by total assets is one of the control variables used in analyzing performance of the bank system (Smirlock, 1985). Bank size is generally used to capture potential economies or dis-economies of scale in the banking sector. A positive relationship between size and bank

profitability could be revealed, if there are significant economies of scale (Akhavein *et al*., 1997). Moreover, Terraza (2015) revealed the evidence of positive and significant profitability persistence for medium sized bank. The study found a relationship between secured and unsecured loan ratio and bank's performance was not significant (Uwuigbe *et al.*, 2015). The study revealed that profitability, capital and bank size are inversely associated with bank credit risk whereas net interest margin and inefficiency have positive effect (Zheng *et al.,* 2018). Based on it, this study develops the following hypothesis:

H_5: There is a positive relationship between client appraisal and bank performance.

Liquidity ratio (LR)

Bourke (1989) revealed that the liquidity ratio measures by liquid assets to total assets is positively related to return on assets (ROA). Similarly, Ruziqa (2013) showed that credit risk has a negative significant effect on ROA and ROE, while liquidity ratio was found having positive significant effect on ROA and ROE. Furthermore, Taiwo *et al.* (2017) revealed that credit risk management has an insignificant impact on the growth of total loans and advances by Nigerian deposit money banks. The study showed that credit risk management and liquidity ratio have positive impact on financial performance. Based on it, this study develops the following hypothesis:

H_6: There is a positive relationship between liquidity ratio and bank performance.

3. Results and discussion

Table 2 presents the descriptive statistics of the selected dependent and independent variables during the period 2015/16 to 2020/21.

Table 2

Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 16 Nepalese commercial banks for the study period from 2015/16 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percent) and ROE (Return on equity as measured by the ratio of net income to shareholder's equity, in percent). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of equity to total assets, in percentage), NPL (Nonperforming loan as measured by the ratio of non-performing loan to total loan, in percentage), LR (liquidity ratio), BS (bank size), CA (Client appraisal) and CT (Credit Term).

Variables	Minimum	Maximum	Mean	Std. Deviation
ROA	1.15	2.17	1.61	0.27
ROE	13.26	24.79	16.88	2.98
CAR	12.33	14.72	13.36	0.74
NPL	12.01	4.33	1.50	1.19
LR	71.70	98.77	85.51	6.95
BS	73.42	224.96	136.09	41.95
CA	35.39	66.93	50.67	8.28
CT	39.80	76.01	57.42	9.66

Source: SPSS output

Correlation analysis

Having indicated the descriptive statistics, Pearson's correlation coefficients are computed and the results are presented in Table 3.

Table 3

Pearson's correlation coefficients matrix

This table shows the bi-variate Pearson's correlation coefficients of dependent and independent variables of 16 Nepalese commercial banks for the study period from 2015/16 to 2020/21. The dependent variables are ROA (Return on assets as measured by the ratio of net income to total assets, in percentage) and ROE (Return on equity as measured by the ratio of net income to shareholder's equity, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage), NPL (Nonperforming loan as measured by the ratio of non-performing loan to total loan, in percentage), liquidity ratio (LR), bank size (BS), client Appraisal (CA) and credit Term (CT).

Variables	ROA	ROE	CAR	NPL	LR	BS	CA	CT
ROA	1							
ROE	-0.023	1						
CAR	0.273**	-0.233**	1					
NPL	-0.256**	-0.442**	-0.134	1				
LR	-0.033	0.035	0.196**	-0.617**	1			
BS	0.148*	0.425**	-0.170*	-0.145	-0.297**	1		
CA	0.141	0.492**	-0.142	-0.256**	-0.145	0.986**	1	
CT	0.146	0.444**	-0.132	-0.236**	-0.152*	0.989**	0.999**	1

Notes: The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent levels respectively.

Table 3 shows that the capital adequacy ratio is positively correlated to return on assets. It means that an increase in capital adequacy ratio leads to increase in return on assets. Similarly, there is a negative relationship between

the non-performing loan and the return on assets. It means that an increase in non-performing loans leads to a decrease in return on assets. Moreover, liquidity ratio has a negative relationship with return on assets. It means that increase in liquidity ratio leads to decrease in return on assets. Furthermore, there is a positive relationship between the bank size and return on assets. It indicates that better bank size leads to an increase in return on assets. Similarly, there is a positive relationship between client appraisal and return on assets. It means that increase in client appraisal lead to an increase in return on assets. Likewise, credit term has a positive relationship with return on assets. It means that a better credit term leads to an increase in return on assets in Nepalese commercial banks.

Similarly, the result also shows that capital adequacy ratio is negatively correlated to return on equity. It means that an increase in capital adequacy ratio leads to decrease in return on equity. Similarly, there is a negative relationship between the non-performing loan and the return on equity. It means that an increase in non-performing loans leads to a decrease in return on equity. Moreover, liquidity ratio has a positive relationship with return on equity. It means that increase in liquidity ratio leads to increase in return on equity. Furthermore, there is a positive relationship between the bank size and return on equity. It indicates that better bank size leads to an increase in return on equity. Similarly, there is a positive relationship between client appraisal and return on equity. It means that increase in client appraisal lead to an increase in return on equity. Likewise, credit term has a positive relationship with return on equity. It means that a better credit terms leads to an increase in return on equity in Nepalese commercial banks.

Regression analysis

Having indicated the Pearson's correlation coefficients, the regression analysis has been carried out and the results are presented in Table 4. More specifically, it shows the regression results of capital adequacy ratio, non-performing loan, liquidity ratio, bank size, client appraisal and credit term on return on assets of Nepalese commercial banks.

Table 4

Estimated regression results of capital adequacy ratio, non-performing loan, liquidity ratio, bank size, client appraisal and credit term on return on assets

The results are based on 16 commercial banks with 128 observations for the period of 2015/16-2020/21 using a linear regression model. The model is $ROA = \beta_0 + \beta_1 CAR + \beta_2 NPL + \beta_3 LR + \beta_4 CA + \beta_5 CT + \beta_6 BS + \varepsilon_{it\ where}$ the dependent variable is ROA (Return on assets as measured by the ratio of net income to total assets, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total assets, in

percentage), NPL (Nonperforming loan as measured by the ratio of non-performing loan to total loan, in percentage), liquidity ratio (LR), bank size (BS), client Appraisal (CA) and credit Term (CT).

Model	Intercept	Regression coefficients of						Adj. R_bar^2	SEE	F-value
		CAR	NPL	LR	BS	CA	CT			
1	0.263 (0.734)	0.101 (3.764) **						0.069	0.264	14.166
2	1.696 (53.016) **		-0.059 (3.509) **					0.060	0.265	12.316
3	1.721 (6.751) **			-0.001 (0.441)				-0.005	0.274	0.195
4	1.477 (21.292) **				0.001 (1.989)*			0.016	0.271	3.957
5	1.373 (10.826) **					0.005 (1.884)		0.014	0.272	3.549
6	1.371 (11.126) **						0.004 (1.958)	0.016	0.271	3.833
7	0.487 (1.365)	0.090 (3.404) **	-0.051 (3.125) **					0.113	0.258	12.320
8	1.572 (3.656) **	0.105 (4.123) **	-0.101 (5.115) **	-0.014 (4.147) **				0.189	0.246	14.706
9	1.441 (2.754) *	0.107 (4.134) **	-0.097 (4.380) **	-0.013 (3.409) **	0.000 (0.443)			0.185	0.247	11.028
10	2.217 (3.791) **	0.109 (4.288) **	-0.105 (4.794) **	0.007 (0.820)	0.022 (2.794) *	-0.109 (2.771) **		0.215	0.242	10.699
11	2.210 (3.769) **		-0.212 (6.612) **	-0.101 (3.802) **	0.085 (3.255) **	-0.218 (4.587) **	0.540 (4.270) **	0.214	0.242	10.662
12	1.461 (10.348) **					-0.060 (1.33)	0.055 (1.407)	0.020	0.271	2.774

Notes:

i. Figures in parenthesis are t-values.

ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.

iii. Return on asset is the dependent variable.

Table 4 shows that the beta coefficients for capital adequacy ratio are positive with return on assets. It indicates that capital adequacy ratio has a positive impact on return on assets. This finding is consistent with the findings of Shabani *et al.* (2019). However, the beta coefficients for non-performing loan are negative with return on assets. It indicates that non-performing loan has a negative impact on return on assets. This finding is similar to the findings of Akter and Roy (2017). Similarly, the beta coefficients for credit risk are negative with return on assets. It indicates that credit risk has a negative impact on return on assets. This finding is consistent with the findings of Biswas *et al*. (2021). Similarly, the beta coefficients for client appraisal are positive with return on assets. It indicates that has client appraisal has a positive impact on return on assets. This finding is similar to the findings of Ogunlade and Oseni (2018). Likewise, the beta coefficients for collection policy are positive with return on assets. It indicates that collection policy has a positive impact on return on assets. This finding is consistent with the findings of Kipkirui and Omagwa (2018). Likewise, the beta coefficients for credit terms are positive

with return on assets which indicates that credit term has a positive impact on return on assets. This finding is consistent with the findings of Jibrin *et al.* (2013).

Table 5. Shows the estimated regression results of capital adequacy ratio, non-performing loan, liquidity ratio, bank size, client appraisal and credit term on return on equity of Nepalese commercial banks.

Table 5

Estimated regression results of capital adequacy ratio, non-performing loan, liquidity ratio, bank size, client appraisal and credit term return on equity

The results are based on 16 commercial banks with 128 observations for the period of 2013/14-2020/21 using a linear regression model. The model is $ROA = \beta_0 + \beta_1 CAR + \beta_2 NPL + \beta_3 LR + \beta_4 CA + \beta_5 CT + \beta_6 BS + \varepsilon_{it}$ where the dependent variable is ROE (Return on equity as measured by the ratio of net income to shareholder's equity, in percentage). The independent variables are CAR (Capital adequacy ratio as measured by the ratio of total capital to total assets, in percentage), NPL (Nonperforming loan as measured by the ratio of non-performing loan to total loan, in percentage), liquidity ratio (LR), bank size (BS), client Appraisal (CA) and credit Term (CT).

Model	Intercept	Regression coefficients of						Adj. R_bar^2	SEE	F-value
		CAR	NPL	LR	BS	CA	CT			
1	29.363 (7.469) **	-0.934 (3.180) **						0.049	2.903	10.110
2	18.533 (57.480) **		-1.103 (6.541) **					0.191	2.678	42.791
3	15.597 (5.634) **			0.015 (0.466)				-0.004	2.984	0.217
4	12.774 (18.530) **				0.030 (6.236) **			0.176	2.702	38.883
5	7.926 (6.544) **					0.177 (7.492) **		0.237	2.600	56.131
6	9.019 (7.444) **						0.137 (6.580) **	0.193	2.675	43.301
7	34.617 (9.876) **	-1.192 (4.606)	-1.203 (7.461) **					0.274	2.536	34.460
8	45.621 (10.829) **	-1.037 (4.154)	-1.708 (8.821) **	-0.144 (4.292) **				0.340	2.419	31.401
9	35.471 (7.176) **	-0.912 (3.743)	-1.373 (6.576) **	-0.079 (2.136)	0.018 (3.624)			0.383	2.339	28.476
10	0.025 (0.947) **	-1.000 (865.008)	-1.002 (1002.849) **	-0.999 (2661.088) **	-0.999 (2719.218)	4.993 (2773.497) **		1.000	0.011	2551422.093
11	0.133 (3.414) **		-0.011 (5.105) **	-0.003 (-1.732)	-0.001 (-0.692)	6.000 (1902.848) **	-4.994 (595.325) **	1.000	0.016	1208800.052
12	-0.060 (6.192) **					6.007 (1917.158) **	-5.005 (1863.421) **	1.000	0.019	2289907.385

Notes:

i. Figures in parenthesis are t-values.

ii. The asterisk signs (**) and (*) indicate that the results are significant at one percent and five percent level respectively.

iii. Return on equity is the dependent variable.

Table 5 shows that the beta coefficients for capital adequacy ratio are

positive with return on equity. It indicates that capital adequacy ratio has a positive impact on return on equity. This finding is consistent with the findings of Agbeja *et al.* (2015). However, the beta coefficients for non-performing loan are negative with return on equity. It indicates that non-performing loan has a negative impact on return on equity. This finding is similar to the findings of Gizaw (2015). Similarly, the beta coefficients for credit risk are negative with return on equity. It indicates that credit risk has a negative impact on return on equity. This finding is consistent with the findings of Al-Husainy and Jadah (2021). Similarly, the beta coefficients for client appraisal are positive with return on equity. It indicates that has client appraisal has a positive impact on return on equity. This finding is similar to the findings of Kiplimo and Kalio (2012). Likewise, the beta coefficients for collection policy are positive with return on equity. It indicates that collection policy has a positive impact on return on equity. This finding is consistent with the findings of Warue (2012). Likewise, the beta coefficients for credit terms are positive with return on equity which indicates that credit term has a positive impact on return on assets. This finding is consistent with the findings of Lunalo *et al.* (2019).

4. Summary and conclusion

Credit risk is by far the most significant risk faced by banks and the success of their business depends on accurate measurement and efficient management of this risk to a greater extent than any other risk. Credit risk management is an approach that is well structured to manage any uncertainty through risk evaluation, strategies development with an aim of managing and mitigating risk using the available resources to managers. Credit risk management is the identification, measurement, monitoring and control of risk arising from the possibility of default in loan repayments. Credit risk is the risk that an asset or loan becomes irrecoverable, in the case of total default or the risk of delay in servicing of loans and advances.

This study attempts to analyze the effect of credit management practices on the performance of Nepalese commercial banks. The study is based on both primary data and secondary data of 16 commercial banks with 179 observations for the period from 2015/16 to 2020/21.

The study showed that capital adequacy ratio, bank size, client appraisal and credit terms have positive impact on return on assets. However, non-performing loan and liquidity ratio have negative impact on return on assets. The study concluded that credit risk is the most influencing factor that explains the changes in the bank's performance in terms of return on assets. Likewise, the study also concluded that the most dominant factor that determines the

return on equity is capital adequacy ratio followed by non-performing loan in the context of Nepalese commercial banks.

References

Adamu, I., A. I. Asongo, & N. Nyor, 2014. Credit risk portfolio management in microfinance banks: Conceptual and practical insights. *Universal Journal of Applied Science* 2(6), 111-119.

Adedeji, A. A., J. N. Taiwo, T. Ikumapayi, & G. Akpevwe, 2018. The evaluation of credit management on the performance of small-scale enterprises in Nigeria. *International E-Journal of Advances in Social Sciences* 4(10), 130-138.

Adegbola, A. S., A. O. Ajayi-Owoeye, & Y. S. Alalade, 2023. Credit management practices and loan default in deposit money banks (DMBs) in Osun State, Nigeria. *South Asian Journal of Social Studies and Economics* 18(1), 37-47.

Adekunle, O., S. Y. Alalade, T. Agbatogun, & C. Abimbola, 2015. Credit risk management and financial performance of selected commercial banks in Nigeria. *Journal of Economic & Financial Studies* 3(1), 01-09.

Afriyie, H. O., & J. O. Akotey, 2012. Credit risk management and profitability of selected rural banks in Ghana. *Journal of Finance, Risk Management and Insurance at the Catholic University College of Ghana* 7(4), 176-181.

Agbeja, O., O. J. Adelakun, & F. I. Olufemi, 2015. Capital adequacy ratio and bank profitability in Nigeria: A linear approach. *International Journal of Novel Research in Marketing Management and Economics* 2(3), 91-99.

Agu, O. C., & C. O. Basil, 2013. Credit management and bad debt in Nigeria commercial Banks: Implication for development. *Journal of Humanities and Social Science* 12(1), 47-56.

Ahmed, S. F., & Q. A. Malik, 2015. Credit risk management and loan performance: Empirical investigation of micro finance banks of Pakistan. *International Journal of Economics and Financial Issues* 5(2), 574-579.

Akhavein, J., A. N. Berger, & D. B. Humphrey, 1997. The effects of mega-mergers on efficiency and prices: Evidence from a bank profit function. *Review of Industrial Organization* 12(1), 95-139.

Akter, R., & J. K. Roy, 2017. The impacts of non-performing loan on profitability: An empirical study on banking sector of Dhaka stock exchange. *International Journal of Economics and Finance* 9(3), 126-132.

Alhassan, A., A. Kyereboah-Coleman, & C. Andoh, 2014. Asset quality in a crisis period: An empirical examination of Ghanaian banks. *Review of Development Finance* 4(1), 50-62.

Alhassan, I., & K. A. Islam, 2021. Credit management strategies and financial performance of industrial goods sector in Nigeria. *Indian Journal of Finance and Banking* 8(1), 59-74.

Al-Husainy, N. H. M., & H. M. Jadah, 2021. The effect of liquidity risk and credit risk on the bank performance: Empirical evidence from Iraq. *iRASD Journal of Economics* 3(1), 58-67.

Aliija, R., & B. W. Muhangi, 2017. The effect of loan appraisal process management on credit performance in microfinance institutions (MFIs): A case of MFIs in Uganda. *International Journal of Science and Research (IJSR) 6*(4), 2283-2289.

Alshatti, A. S., 2015. The effect of credit risk management on financial performance of the Jordanian commercial banks. *Investment Management and Financial Innovations* 12(1), 338-345.

Altman, E. I., 2002. Managing credit risk: A challenge for the new millennium. *Financial Analysts Journal* 31(2), 201-214.

Asselbergh, G., 2002. Financing firms with restricted access to financial markets: The use of trade credits and factoring in Belgium. *The European Journal of Finance* 8(1), 2-20.

Bagchi, M., & C. Ennew, 2004. Information asymmetries and the provision of finance to small firms. *International Small Business Journal* 11(1), 35-46.

Bhatt, T. K., N. Ahmed, M. B. Iqbal, & M. Ullah, 2023. Examining the determinants of credit risk management and their relationship with the performance of commercial banks in Nepal. *Journal of Risk and Financial Management* 16(4), 235.

Bhattarai, Y. R., 2016. Effect of credit risk on the performance of Nepalese commercial banks. *NRB Economic Review* 28(1), 41-64.

Biswas, M. R., S. D. Nath, P. K. Biswas, & M. A. Rashid, 2021. Effect of credit risk on commercial banks' profitability: A case study of Bangladesh. *Indian Journal of Commerce and Management Studies* 12(1), 44-50.

Bourke, P., 1989. Concentration and other determinants of bank profitability in Europe, North America and Australia. *Journal of Banking and Finance* 13(1),

65–79.

Cheng, N. S., & R. Pike, 2003. The trade credit decision: Evidence of UK firms. *Managerial and Decision Economics* 24(*6*), 419-438.

Chijoriga, M. M., 2011. Application of multiple discriminant analysis (MDA) as a credit scoring and risk assessment model. *International Journal of Emerging Markets* 6(*2*), 132-147.

Conford, A., 2000. The Basel committee's proposals for revised capital standards: Rationale, design and possible incidence. *G-24 Discussion Paper Series, United Nations* 3(1), 1-25.

Disney, R., & J. Gathergood, 2013. Financial literacy and consumer credit portfolios. *Journal of Banking & Finance* 37(7), 2246-2254.

Edwin, K., & J. Omagwa, 2018. Credit management practices and financial performance of microfinance institutions in Nairobi central business district, Kenya. *International Journal of Scientific and Education Research* 2(5), 64-80.

Elemu, A., 2021. Credit management practices, loan repayment management and profitability of commercial banks' branches in Uganda. *Student's Journal of Health Research Africa* 2(12), 16-16.

Enoch, E. Y., A. M. Digil, & U. A. Arabo, 2021. A comparative evaluation of the effects of credit risk control on the profitability of micro-finance bank. *European Journal of Business and Management Research* 6(6), 67-74.

Ezike, J. E., & M. D. Oke, 2013. Capital adequacy standards, basel accord and bank performance: the Nigerian experience. *A case study of selected banks in Nigeria*. *Asian Econ. Finance Rev* 3(2), 146-159.

Fredrick, M., 2015. Effect of credit risk management procedure on financial performance among microfinance institution. *International Journal of Humanities Social Sciences and Education* 2(3), 81-103.

Gakure, R. W., J. K. Ngugi, P. M. Ndwiga, & S. M. Waithaka, 2012. Effect of credit risk management techniques on the performance of unsecured bank loans employed commercial banks in Kenya. *International Journal of Business and Social Research (IJBSR)* 2(4), 221-236.

García, F., F. Giménez, & F. Guijarro, 2013. Credit risk management: A multi criteria approach to assess creditworthiness. *Mathematical and Computer Modelling* 57(1), 2009-2015.

Gauchan, A., & T. P. Upadhyaya, 2020. Credit portfolio management and profitability of joint venture commercial banks of Nepal. *SSRG International Journal of Economics and Management Studies (SSRG-IJEMS)* 6(3), 125-129.

Gichuhi, A. W., & J. Omagwa, 2020. Credit management and loan portfolio performance of savings and credit cooperative societies in Nyandarua County, Kenya. *International Academic Journal of Economics and Finance* 3(5), 121-139.

Gizaw, M. M., 2015. The impact of credit on profitability performance of commercial banks in Ethiopia. *African Journal of Business Management* 9(2), 59-66.

Gizaw, M., M. Kebede, & S. Selvaraj, 2015. The impact of credit risk on profitability performance of commercial banks in Ethiopia. *African Journal of Business Management* 9(2), 59-66.

Gupta, D., & L. Wang, 2009. A stochastic inventory model with trade credit. *Journal of Manufacturing & Service Operations Management* 11(1), 4-18.

Gupta, N., & J. Mahakud 2020. Ownership, bank size, capitalization and bank performance: Evidence from India. *Cogent Economics & Finance* 8(1), 180-282.

Iloska, N., 2014. An analysis of bank profitability in Macedonia. *Journal of Applied Economics and Business* 2(1), 31-50.

Jha, S., & X. Hui, 2012. A comparison of financial performance of commercial banks: A case study of Nepal. *African Journal of Business Management* 6(25), 7601-7611.

Jibrin, M. S., M. S. K. Ifurueze, & S. B. Ejura, 2013. The impact of effective management of credit sales on profitability and liquidity of food and beverage industries in Nigeria. *Global Journal of Management and Business Research* 6(25), 601-611.

Kalu, E. O., B. Shieler, & C. U. Amu, 2018. Credit risk management and financial performance of microfinance institutions in Kampala, Uganda. *Independent Journal of Management & Production* 9(1), 153-169.

Kattel, I. K., 2015. Study of credit risk identification techniques followed by commercial banks in Nepal. *Journal of Advanced Academic Research* 2(2), 1-17.

Kattel, I. K., 2016. Evaluating the credit risk measurement practices of commercial banks in Nepal. *Journal of Business and Management* 18(3), 32-137.

Kipkirui, E., & J. Omagwa, 2018. Credit management practices and financial performance of microfinance institutions in Nairobi central business district, Kenya. *International Journal of Scientific and Education Research* 2(6), 64-80.

Kiplimo, K. S., & A. M. Kalio, 2012. Influence of credit risk management practices on loan performance of microfinance institutions in Baringo County. *International Journal of Science and Research (IJSR)* 3(10), 2260-2267.

Kithinji, A. M., 2010. Credit risk management and profitability of commercial banks in Kenya. *School of Business Journal, University of Nairobi* 1(1), 19-27.

Kodithuwakku, S., 2015. Impact of credit risk management on the performance of commercial banks in Sri Lanka. *International Journal of Scientific Research and Innovative Technology* 2(7), 1-6.

Kolapo, T. F., R. K. Ayeni, & M. O. Oke, 2012. Credit risk and commercial banks 'performance in Nigeria: A panel model approach. *Australian Journal of Business and Management Research* 2(2), 31-55.

Kurawa, J. M., & S. Garba, 2014. An evaluation of the effect of credit risk management (crm) on the profitability of Nigerian banks. *Journal of Modern Accounting and Auditing* 10(1), 104-115.

Li, F., & Y. Zou, 2014. The impact of credit risk management on profitability of performance: The Nigerian experience (A case study of selected banks in Nigeria). *Asian Econ. Finance Rev*. 3(2), 146-159.

Love, I., L. A. Preve, & V. Sarria-Allende, 2007. Trade credit and bank credit: Evidence from recent financial crises. *Journal of Financial Economics* 83(2), 453-469.

Lunalo, K. Mercy, & O. George, 2019. Effect of credit management on financial performance of firm's transport firms in Mombasa County. *International Journal of Academics and research* 1(4), 83-97.

Marshal, I., & O. Onyekachi, 2014. Credit risk and performance of selected Deposit Money Banks in Nigeria: An empirical investigation. *European Journal of Humanities and Social Sciences* 31(1), 1-12.

Muhammad, N., S. F. S. Alwi, & N. Muhammad, 2020. Credit management in full-fledged Islamic bank and Islamic banking window: Towards achieving Maqasid Al-Shariah. *International Journal of Financial Research* 11(3), 92-99.

Moruf, O. L. A. D. E. J. O., 2013. Evaluation of the Nigerian microfinance banks credit administration on small and medium scale enterprises operations. *International Review of Management and Business Research* 2(2), 505-517.

Muritala, T. A., & A. S. Taiwo, 2013. Credit management spur higher profitability? Evidence from Nigerian banking sector. *Journal of Applied Economics and Business* 1(2), 46-53.

Muthoni, M. I., L.W. Mwangi, & S. M. Muathe, 2020. Credit management practices and loan performance: Empirical evidence from commercial banks in Kenya. *International Journal of Current Aspects in Finance, Banking and Accounting* 2(1), 51-63.

Nikolaidou, E., & S. Vogiazas, 2014. Credit risk determinants for the Bulgaria banking system. *International Journal of Advance Economics Research* 20(1), 87-102.

Nthiga, A. K., & E. Simiyu, 2021. Credit management practices and lending decision by digital financial firms in Kenya. *Journal of Finance and Accounting* 5(1), 49-69.

Nwanna, I. O., & F. C. Oguezue, 2017. Effect of credit management on profitability of deposit money banks in Nigeria. *IIARD International Journal of Banking and Finance Research* 3(2), 137-160.

Ogunlade, O., & M. Oseni, 2018. Credit management practices and bank performance: Evidence from first bank. *South Asian Journal of Social Studies and Economics* 1(1), 1-10.

Okpala, K. E., C. Osanebi, & A. Irinyemi, 2019. The impact of credit management strategies on liquidity and profitability. *Journal of Behavioural Studies* 1(1), 1-14.

Olabamiji, O., & O. Michael, 2018. Credit management practices and bank performance: Evidence from first bank. *South Asian Journal of Social Studies and Economics* 1(1), 1-10.

Olalere, O. E., & W. O. Ahmad, 2015. The empirical effects of credit risk on profitability of commercial banks: Evidence from Nigeria. *International Journal of Science and Research* 5(1), 1645-1650.

Paudel, A., Z. A. Worku, J. Meeus, S. Guns & G.Van den Mooter, 2013. Manufacturing of solid dispersions of poorly water-soluble drugs by spray drying: formulation and process considerations. *International Journal of Pharmaceutics* 453(1), 253-284.

Petersen, M. A. & R. G. Rajan, 1995. The effect of credit market competition on lending relationships. *The Quarterly Journal of Economics* 110 (2), 407-443.

Petersen, M. A., & R. G. Rajan 1997. Trade credit: Theories and evidence. *The Review of Financial Studies* 10(3), 661-691.

Poudel, S. R., 2018. Impact of credit risk on profitability of commercial banks in Nepal. *Journal of Applied and Advanced Research* 3(6), 161-170.

Psillaki, M., I. Tsolas, & D. Margaritis, 2010. Evaluation of credit risk based on firm performance, *European Journal of Operational Research* 201(3), 873-888.

Risal, H. C., & S. Poudel, 2020. Role of credit risk in performance difference between A and B class banks in Nepal. *NRB Economic Review* 32(1), 37-53.

Ruziqa, A., 2013. The impact of credit and liquidity risk on bank financial performance: the case of Indonesian Conventional Bank with total asset above 10 trillion Rupiah. *International Journal of Economic Policy in Emerging Economies* 6(2), 93-106.

Saeed, M., & N. Zahid, 2016. The impact of credit risk on profitability of the commercial banks. *Journal of Business and Financial Affairs* 5(2), 1-7.

Seppälä, J., 2004. The term structure of real interest rates: Theory and evidence from UK index-linked bonds. *Journal of Monetary Economics* 51(7), 1509-1549.

Shabani, H., F. Morina, & V. Misiri, 2019. The effect of capital adequacy on returns of assets of commercial banks in Kosovo. *European Journal of Sustainable Development*, *8*(2), 201-208.

Smirlock, M (1985). Evidence of non-relationship between concentration and profitability in Banking. *Journal of Money, Credit and Banking* 17(1), 69-83.

Ssekiziyivu, B., J. Bananuka, I. N. Nabeta, & Z. Tumwebaze, 2018. Borrowers characteristics, credit terms and loan repayment performance among clients of microfinance institutions (MFIs): Evidence from rural Uganda. *Journal of Economics and International Finance* 10(1), 1-10.

Taiwo, J. N., E. G. Ucheaga, B.U. Achugamonu, K. Adetiloye, L. Okoye & M. E. Agwu, 2017. Credit risk management: Implications on bank performance and lending growth. *Saudi Journal of Business and Management Studies* 2(5B), 584-590.

Terraza, V., 2015. The effect of bank size on risk ratios: Implications of banks' performance. *Journal of Procedia Economics and Finance* 30(1), 903-909.

Thompson, P., 1998. Bank lending and the environment: policies and opportunities. *International Journal of Bank Marketing* 16(6), 243–252.

Timsina, N., 2014. Impact of bank credit on economic growth in Nepal. *Nepal Rastra Bank, Journal of Research Department* 22(1), 1-23.

Uwuigbe, U., O. R. Uwuigbe, & B. Oyewo, 2015. Credit management and bank performance of listed banks in Nigeria, *Journal of Economics and Sustainable Development* 6(2), 27-32.

Warue, B. J., 2012. Factors affecting loan delinguency in microfinance institutions in Kenya. *International Journal of Management Sciences and Business Research* 1(12), 29-48.

Weber, O., 2005. Sustainability benchmarking of European banks and financial service organizations. *Journal of Corporate Social Responsibility and Environmental Management* 12(1), 73–87.

Zheng, C., N. Sarker, & S. Nahar, 2018. Factors affecting bank credit risk: An empirical insight. *Journal of Applied Finance & Banking* 8(2), 45-67.