Risk Management in Business Firms of Kathmandu Valley

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Abstract

This study examines the risk management in business firms of Kathmandu valley. Non-performing loan is selected as the dependent variables. Similarly, bank size, liquidity ratio, return on assets, loan loss provision and capital adequacy ratio are selected as the independent variables. This study is based on secondary data of 20 banks with 140 observations for the study period from 2014/15 to 2020/21. The data were collected from Banking and Financial statistics published by Nepal Rastra bank and the annual reports of respective banks. The correlation coefficients and regression models are estimated to test the significance and importance of risk management in business firms of Kathmandu valley.

The study revealed that bank size has a positive impact on non-performing loan. It means that increase in bank size leads to increase in non-performing loan. Likewise, liquidity ratio has a positive impact on non-performing loan. It shows that higher the liquidity ratio, higher would be the non-performing loan. In addition, return on assets has a negative impact on non-performing loan. It shows that higher the return on assets, lower would be the non-performing loan. Likewise, loan loss provision has a negative impact on non-performing loan. It indicates that increase in loan loss provision leads to decrease in non-performing loan. Similarly, capital adequacy ratio has a positive impact on non-performing loan. It indicates that increase in capital adequacy ratio leads to increase in non-performing loan.

Keywords: Non-performing loan, bank size, liquidity ratio, return on assets, loan loss provision, capital adequacy ratio

1. Introduction

The term risk is generally defined as the volatility of a particular security. Typically, investments are an associated risk based on their market exposure and the instabilities within them (Tahir, 2020). Risk management is the human activity which integrates recognition of risk, risk assessment, developing strategies to manage it, and mitigation of risk using managerial resources. Similarly, the risks that are most applicable to banks are credit risk, liquidity risk, and solvency risk (Appa, 1996). Among the different types of risk which are faced by banks, credit risk seems to have more impact on a bank's profitability because a bank's revenue is generated from loans from which interest is derived (Laryea *et al.*, 2016).

Non-performing loan (NPL) is a loan that is subject to late repayment or is unlikely to be repaid by the borrower in full. Non-performing loans represent a major challenge for the banking sector, as they reduce profitability. Moreover, Mileris (2012) found that non-performing loan is a common cause of bank failure which distresses the performance and survival of banks. Similarly, Mamman and Oluyemi (1994) stated that non-performing loan is negatively related with profitability. Likewise, Noman *et al.* (2015) found a robust negative and significant effect of non-performance loan profitability of the banks.

Adhikari (2007) found that the causes of nonperforming loans are usually attributed to the lack of effective monitoring and supervision on the part of banks, lack of effective lenders recourse, weaknesses of legal infrastructure, and lack of effective debt recovery strategies. Sufian *et al.* (2016) stated that the performance of the banking sector is essential for

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managers of the bank, the central bank, bankers' association, and other financial authorities to help them formulate policies to improve the performance of the banking sector. Further, Dimitrios *et al.* (2016) found that bank insolvency has been a significant problem in many countries all over the world. Karim *et al.* (2010) argued that it will have a detrimental effect since such banks will exert additional managerial effort and give additional expense dealing with these loans.

Khanifah *et al*. (2020) stated that the necessity and importance of enforcing effective corporate governance in the banking sector. Likewise, Gnawali (2018) found that the efficient and effective performance of the banking industry over time guarantees the financial stability of any nation. Laryea *et al.* (2016) found that among the different types of risk which are faced by banks, credit risk seems to have more impact on a bank's profitability because a bank's revenue is generated from loans from which interest is derived. Similarly, Maudos *et al.* (2004) showed that the fall of margins in the European banking system is compatible with a relaxation of the competitive conditions (increase in market power and concentration), as this effect has been counteracted by a reduction of interest rate risk, credit risk, and operating costs.

A sound, liberal and dynamic banking system is an essential requirement for economic development of any nation (Nachimuthu and Veni, 2019). Further, if appropriate management steps are taken and financial distress factors are used effectively, it can recover and experience a resurgence (Wang & Shiu, 2014). Furthermore, Adeyemi (2012) argued that financial distress is a situation in which an institution is having operational, managerial and financial difficulties. Breuer (2006) found that problem bank loans are the outcome of decisions made by banks in the dual role they serve as financial intermediaries. Moreover, Salas *et al.* (2002) found that the failure of banks in Nepal was also the result of the high non-performing assets, lending without differentiating markets, products, and borrowers' creditworthiness, and excessive loan exposure to real estate.

Kolapo *et al.* (2012) stated that the higher a bank's exposure to credit risk, the much higher banks tend to experience financial crisis and vice-versa. Similarly, Psillaki *et al*. (2010) found that it is in the interest of banks and regulatory bodies to manage effectively credit risk, because it's impacted the bank's financial stability, the stability of the system, and distribution of capital in the economy. Likewise, Gephart *et al.* (2009) stated that there are few critical contributions exploring how enterprise risk management works in practice, and even fewer addressing how its organizational assembling evolves and contributes to a risk management style. Moreover, Fraser & Henry (2007) found that the second element is that of the corporate roles involved in controlling uncertainty, which include not only the enterprise risk management orchestrators, usually given the title of chief risk officer (CRO), but also risk specialists, internal auditors and management accountants, who also increasingly aspire to a greater role in risk management.

Falkner *et al.* (2015) investigated risk management in small and medium sized enterprises: a systematic review of available evidence. The study identified various types of risks that may occur in small and medium sized enterprises. The publication analysis demonstrates the importance of a risk management process in small and medium sized enterprises and that the characteristics of small and medium sized enterprises owners have a significant impact on their business strategies. Similarly, Prasanth *et al.* (2020) investigated factors affecting non-performing loan in India. The study found that poor credit risk

evaluation, concentrate on collateral based lending, poor loan monitoring and follow-up, and poor banker's ability in commencing with lending matters, undiversified loan products, short loan life and lack of credit advisory practices were also the bank specific factors that affect non-performing loans. Moreover, Manab *et al.* (2015) investigated the determinants of credit risk and to examine the impact of earnings management on credit risk prediction. The study concluded that the liquidity ratio is significant in determining credit risk before and after earnings management is adjusted. The study stated that the productivity ratio is a significant in the unadjusted model. Similarly, the profitability ratio was significant in the adjusted model.

Brastama *et al.* (2020) explored the effect of capital adequacy ratio and non-performing loan on banking stock prices with profitability as intervening variable. The study found capital adequacy ratio variable has a positive effect on return on assets and the non-performing loan variable has a negative effect on the return on asset variable. Likewise, Wood *et al.* (2018) investigated determinants of non-performing loans: evidence from commercial banks in Barbados. The study found that bank-specific factors: Return on equity, return on assets, capital adequacy ratio and loan to deposit ratio are significant determinants of non-performing loans, while the macroeconomic variables exerting significant influence are GDP growth, unemployment and interest rate. Similarly, Kingu *et al.* (2018) explored impact of non-performing loans on bank's profitability: empirical evidence from commercial banks in Tanzania. The study found that occurrence of non-performing loans is negatively associated with the level of profitability in commercial banks in Tanzania. Swandewi *et al.* (2021) investigated capital adequacy ratio mediates the effect of non-performing loan on returns on assets in public commercial banks. The study found that there is a negative and significant relationship between non-performing loans and capital adequacy ratio.

In the context of Nepal, Singh *et al.* (2021) investigated the effect of non-performing loan on profitability. The study found that bank size and capital adequacy ratio are negative but bank size is significant and capital adequacy ratio is not significant. Bhattarai *et al.* (2016) investigated effect on non-performing loan on the profitability of commercial banks in Nepal. The study found that profitability of commercial banks in Nepal is influenced by the non-performing loan ratio and other covariates. Likewise, Panta *et al.* (2018) explored non-performing loans & bank profitability. The study found that net interest margin and bank size as the determinants of the non-performing loan. Similarly, Gautam *et al.* (2018) investigated impacts of non-performing loans on profitability of Nepalese commercial banks. The study found that beta coefficient for credit to deposit ratio, net profit to loan and advances, nonperforming loan to total loan, interest income to loan and advance are positive on return on assets.

The above discussion shows that empirical evidences vary greatly across the studies on risk management in business firms. 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 analyze risk management in business firms of Kathmandu Valley. Specifically, it examines the relationship of bank size, liquidity ratio, return on assets, loan loss provision and capital adequacy ratio with non-performing loan in business firms of Kathmandu Valley.

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 sections draws the conclusion.

2. Methodological aspects

The study is based on the secondary data which were gathered from 20 commercial banks for the period from 2014/15-2020/21, leading to a total of 140 observations. The study employed stratified sampling method. The main sources of data include Banking and Financial Statistics published by Nepal Rastra Bank, reports published by Ministry of Finance and annual report of respective banks. This study is based on descriptive as well as causal comparative research designs. Table 1 shows the list of 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 study period and number of observations

S.N	Name of bank	Period	Observation
1	Everest Bank Limited	2014/15-2020/21	7
2	Himalayan Bank Limited	2014/15-2020/21	7
3	Nepal Bank Limited	2014/15-2020/21	7
4	Nepal SBI Bank Limited	2014/15-2020/21	7
5	Standard Chartered Bank Nepal Limited	2014/15-2020/21	7
6	Bank of Kathmandu Limited	2014/15-2020/21	7
7	Citizens Bank International Limited	2014/15-2020/21	7
8	Kumari Bank Limited	2014/15-2020/21	7
9	Laxmi Bank Limited	2014/15-2020/21	7
10	Machhapuchhre Bank Limited	2014/15-2020/21	7
11	Mega Bank Limited	2014/15-2020/21	7
12	Nepal Investment Bank Limited	2014/15-2020/21	7
13	NMB Bank Limited	2014/15-2020/21	7
14	NIC Asia Bank Limited	2014/15-2020/21	7
15	Prime Commercial Bank Limited	2014/15-2020/21	7
16	Sanima Bank Limited	2014/15-2020/21	7
17	Siddhartha Bank Limited	2014/15-2020/21	7
18	Sunrise Bank Limited	2014/15-2020/21	7
19	Nepal Bangladesh Bank Limited	2014/15-2020/21	7
20	NCC Bank Limited	2014/15-2020/21	7
Total observations			140

Thus, the study is based on the 140 observations.

The model

The model tries to find out the relationship of risk management of business firms in Kathmandu valley, the model is given below:

$NPL = \beta_0 + \beta_1 CAR + \beta_2 ROA + \beta_3 LLP + \beta_4 LR + \beta_5 BS +_i$

Where,

NPL= Non-performing loan is measured by the ratio of total non-performing loan and total loan, in percentage.

LLP= Loan loss provision is measured by an income statement expense set aside as an allowance for uncollected loans and loan payments, in percentage.

CAR= Capital adequacy ratio is measured by the ratio of capital funds to risk weighted assets, in percentage.

LR= Liquidity ratio is measured by the ratio between liquid assets and total deposit plus short term borrowing, in percentage.

BS = Bank size is measured by total assets amount in million.

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

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

Bank Size

Yulianti *et al.* (2018) observed that capital adequacy ratio, bank size, and loan to deposit ratio have significant effect on nonperforming loans. The effect of bank size on profitability is generally expected to be positive (Smirlock, 1985). Further, positive relationship between size and bank profitability could be determined if there is a significant economies of scale (Akhavein *et al.*, 1997). Further, Panta (2018) found that net interest margin, bank size and non-performing loan have its significant effect seen on the credit risk lead to profitability. In addition, Alzoubi and Obeidat (2020) determined that there is a negative relationship between the bank size and credit risk. In addition, Eng and Nabar (2007) explained the positive relationship of the size with loss loan provision. Based on it, this study develops the following hypothesis:

H_1: There is a positive relationship between bank size and non-performing loan.

Liquidity ratio

Bhunia (2012) found that liquidity is of major importance to both the internal and the external analysts because of its close relationship with day-to-day operations of a business. Olagunju *et al*. (2011) found that liquidity is the ability of financial organizations to meet their short-term obligations. Pandia (2012) stated that liquidity ratio states how far banks have used depositors' money to provide loans to their customers. According to government regulations, the total loan to deposits that can be given is 110%. Sudirman (2013) found that one way to determine bank liquidity can be measured by the Loan to deposit Ratio (LDR). Based on it, this study develops the following hypothesis:

H_2: There is a positive relationship between liquidity ratio and non-performing loan.

Return on assets

Boudriga *et al.* (2009) revealed that the return on assets has a negative and statistically significant effect on non-performing. Similarly, Kolapo *et al.* (2012) revealed that the effect of credit risk on bank performance measured by the return on assets of banks was cross-sectional and invariant. Further, Jha and Hui (2012) found a positive correlation between return on assets and non-performing loans in the Nepalese banking system. Moreover, Dhakal (2015) found that there is a positive and significant relationship between return on assets and loan loss provision. Likewise, Alhadab (2016) concluded that there is a negative relationship between return on assets and loan loss provision. Based on it, this study develops the following hypothesis:

H_3: There is a negative relationship between return on assets and non-performing loan.

Loan Loss Provision

Mustafa *et al.* (2012) concluded that banks with less loan loss provision are perceived to have more salty and such an advantage can be translated into higher profitability Ahmed *et al*. (1998) found that loan loss provision has a significant positive influence on non-performing loans. Therefore, an increase in loan loss provision indicates an increase in credit risk and deterioration in the quality of loans consequently affecting bank performance adversely. Likewise, Miller and Noulas (1997) stated the negative relationship between credit risk and profitability. The study showed that whenever there is a negative relationship between them, then it signifies that greater risk linked with loans, higher the level of loan loss supplies which thereby and create a trouble at the profit-maximizing strength of a bank. Based on it, this study develops the following hypothesis:

H_4: There is a negative relationship between loan loss provision and non-performing loans.

Capital adequacy ratio

Capital adequacy ratio reflects how much the bank's ability to face unexpected risks (Anggari & Dana, 2020). Moreover, Septiani & Lestari (2016) found that the capital adequacy ratio could mediate between the effect of non-performing loans and return on assets. Febriyono (2015) found that non-performing loans in their effect on return on assets were not mediated by a capital adequacy ratio. Indrayani & Yudiaatmaja (2016) stated that return on assets is able to mediate capital adequacy ratio and non-performing loan against banking stock prices. Meanwhile, Sepdiana (2017) stated that return on asset is insignificant or does not mediate capital adequacy ratio and non-performing loan on banking stock prices. Based on it, this study develops the following hypothesis:

H_5: There is a positive relationship between capital adequacy ratio and non-performing loans.
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3. Results and discussion

Descriptive statistics

Table 2 presents the descriptive statistics of selected dependent and independent variables during the period 2014/15-2020/21.

Table 2

Descriptive statistics

This table shows the descriptive statistics of dependent and independent variables of 20 Nepalese commercial banks for the study period 2014/15-2020/21. Dependent variable is NPL (Non-performing loan is measured by the ratio of total non-performing loan and total loan, in percentage). Independent variables are, ROA (Return on assets is measured by ratio of net income to total assets, in percentage), CAR (Capital adequacy ratio is measured by the t ratio of capital funds to risk weighted assets, in percentage), LR (liquidity ratio is measured by the ratio between liquid assets and total deposit plus short term borrowing, in percentage), BS (Bank size measured by total assets is one of the control variables used in analyzing performance of the bank system, in rupees) and LLP (loss loan provision is measured by an income statement expense set aside as an allowance for uncollected loans and loan payments, in percentage).

Variables	Minimum	Maximum	Mean	S.D.
NPL	0.02	7.49	1.06	1.00
LLP	0.04	2.95	0.69	0.48
CAR	10.71	22.99	13.61	1.96
BS	24707.00	458014.00	115536.95	64482.67
LR	0.00	104.75	84.37	13.20
ROA	0.17	2.69	1.63	0.44

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 Pearson's correlation coefficients among different dependent and independent variables of 20 Nepalese commercial banks for the study period of 2014/15 to 2020/21. Dependent variable is NPL (Non-performing loan is measured by the ratio of total non-performing loan and total loan, in percentage). Independent variables are, ROA (Return on assets is measured by ratio of net income to total assets, in percentage), CAR (Capital adequacy ratio is measured by the t ratio of capital funds to risk weighted assets, in percentage), LR (liquidity ratio is measured by the ratio between liquid assets and total deposit plus short term borrowing, in percentage), BS (Bank size measured by total assets is one of the control variables used in analyzing performance of the bank system, in rupees) and LLP (loss loan provision is measured by an income statement expense set aside as an allowance for uncollected loans and loan payments, in percentage).

Variables	NPL	LLP	CAR	BS	LR	ROA
NPL	1					
LLP	0.532**	1				
CAR	-0.126	-0.036	1			
BS	0.001	0.017	0.154	1		
LR	0.072	0.019	-0.036	0.162	1	
ROA	-0.238**	-0.258**	0.198*	-0.016	-0.170*	1

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

Table 3 shows that bank size has a positive relationship with non-performing loan. It means that increase in bank size leads to increase non-performing loan. Likewise, liquidity ratio has a positive relationship with non-performing loan. It shows that higher

the liquidity ratio, higher would be the non-performing loan. Further, this study shows that there is a negative relationship between return on assets and non-performing loan. It means that increase in return on assets leads to decrease in non-performing loan. In addition, loan loss provision has a negative relationship with non-performing loan. It means that increase in loan loss provision leads to decrease in non-performing loan. Furthermore, there is a positive relationship between capital adequacy ratio and non-performing loan. It indicates that increase in capital adequacy ratio leads to increase in non-performing loan.

Regression analysis

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

Table 4

Estimated regression results are of capital adequacy ratio, bank size, loan loss provision, liquidity ratio and return on assets on non- performing loan

This result is based on panel data with 140 observations for the period of 2014/15 to 2020/21by using linear regression model. The model is NPL= $\beta_0 + \beta_1$ CAR + β_2 ROA+ β_3 LLP+ β_4 LR + β_5 BS+$_i$ where, dependent variable is NPL (Non-performing loan is measured by the ratio of total non-performing loan and total loan, in percentage). Independent variables are ROA (Return on assets is measured by ratio of net income to total assets, in percentage), CAR (Capital adequacy ratio is measured by the t ratio of capital funds to risk weighted assets, in percentage), LR (liquidity ratio is measured by the ratio between liquid assets and total deposit plus short term borrowing, in percentage), BS (Bank size measured by total assets is one of the control variables used in analyzing performance of the bank system, in rupees and LLP(loss loan provision is measured by an income statement expense set aside as an allowance for uncollected loans and loan payments, in percentage).

Model	Intercept	Regression coefficients of					Adj. R_bar^2	SEE	F-value
		CAR	BS	LLP	LR	ROA			
1	1.932 (3.263)**	-0.064 (1.496)					0.009	0.998	2.239
2	1.035 (0.545)		0.002 (0.011)				0.007	1.005	0.001
3	0.391 (0.189)			-0.048 (3.660)			0.006	1.005	0.103
4	0.912 (4.641)**						0.002	1.003	0.658
5	0.593 (1.077)				0.005 (0.851)		0.002	1.003	0.725
6	1.096 (4.370)**						0.007	1.005	0.029
7	1.946 (6.079)**				-0.057 (4.284)	-0.546 (2.880)**	0.050	0.977	8.292
8	1.973 (5.037)**				-0.042 (2.828)	-0.545 (2.866)**	0.043	0.980	4.123
9	2.236 (1.179)	-0.430 (0.98)	0.020 (0.123)		-0.041 (3.033)	-0.507 (2.61)*	0.043	0.980	3.064

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. Non-performing loan is the dependent variable.

Table 4 shows that the beta coefficients for capital adequacy ratio are negative with non-performing loan. It indicates that capital adequacy ratio has a negative impact on non-

performing loan. This finding is consistent with the findings of Djiogap and Ngomsi (2012). Similarly, beta coefficients for bank size are positive with non-performing loan. It reveals that bank size has a positive impact on non-performing loan. This finding is consistent with the findings of Yulianti *et al.* (2018). Moreover, beta coefficients for loan loss provision are negative with non-performing loan. It indicates that higher the loan loss provision, lower will be the non-performing loans. Further, beta coefficients for liquidity ratio are positive with non-performing loan. It indicates that liquidity ratio has a positive impact on non-performing loan. This finding is similar to the findings of Imbierowicz and Rauch (2011). Likewise, beta coefficients for return on assets are negative with non-performing loan. It reveals that return on assets has a negative impact on non-performing loan. This finding is similar to the findings of Boudriga *et al.* (2009). The result shows that the beta coefficients for bank size, capital adequacy ratio, loan loss provision and liquidity ratio are not statistically significant at one percent and 5 percent level of significance. The result also shows that the beta coefficients for return on assets is statistically significant at one percent of significance.

4. Summary and conclusion

The term risk is generally defined as the volatility of a particular security. Risk management is the human activity which integrates recognition of risk, risk assessment, developing strategies to manage it, and mitigation of risk using managerial resources. Non-performing loan (NPL) is a loan that is subject to late repayment or is unlikely to be repaid by the borrower in full which represent a major challenge for the banking sector, as they reduce profitability.

This study attempts to analyze the risk management in business firms of Kathmandu valley. The study is based on secondary data of 20 banks with 140 observations for the period from 2014/15-2020/21.

The study showed that bank size, liquidity ratio and capital adequacy ratio have a positive impact on non-performing loan. Similarly, loan loss provision and return on assets have a negative impact on non-performing loan. The study also concluded that return on assets followed by capital adequacy ratio is the most influencing factor that explains the changes in non-performing loan in business firms of Kathmandu Valley.

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