Financial Performance Analysis of Nepalese Financial Institutions in the Framework of CAMEL

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Abstract

Analysis of financial performance to detect financial health of finance companies, development banks and commercial banks as a whole is a less explored research in Nepalese context. This paper, therefore, attempts to examine the financial performance and factors influencing financial performance of Nepalese financial depositary institutions in the framework of CAMEL. This study is based on descriptive cum casual research design. This study is based on secondary data which was extracted from various publications published by Nepal Rastra Bank such as banking and financial statistics, financial stability report and bank supervision report. All commercial banks, development banks, and finance companies are taken as population of the study. The study deals with financial performance analysis of entire population covering five years from 2014/15 to 2018/19. The variables such as capital adequacy, assets quality, management efficiency, earnings and liquidity are used to analyze financial performance. Descriptive as well as pooled regression analysis was used to assess the relationship among the variables. Descriptive analysis shows that financial institutions in each category meet NRB standard regarding capital adequacy. On the basis of capital adequacy and earnings, finance companies stand at first, on the basis of assets quality, development banks stand at first and on the basis of management efficiency, commercial banks stand at first. Finance companies store high liquidity as compared to other class financial institutions. The regression analysis shows that return on assets, ROA has significant positive relationship with capital adequacy and ROE but ROA has significant negative relationship with assets quality. However, return on equity, ROE has significant positive relationship with assets quality and ROA but ROE has

significant negative relationship with capital adequacy. Capital adequacy and assets quality play major role to maximize ROA and ROE of financial institutions.

Keywords: Assets quality, capital adequacy, earnings and liquidity, management efficiency

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Introduction

The financial sector plays an important role for the economic development of any nation. Financial institutions especially depositary institutions collect saving from those who have saving and provide loan for those who need fund. Hence, banking industry serves as the backbone of the financial sector (Arif, & Anees, 2012). Due to financial liberalization policies introduced in the late 1980s, several joint venture banks were established. As a result, large number of domestic investors also started investing in the banking industry. After introduction of merger and acquisition policies and mandatory requirement to increase paid up capital, merger and acquisition takes place among financial institutions resulting into decrease in number of bank and financial institutions, BFIs(NRB, 2018).

Financial analysis is the process of evaluating financial statement of a firm through the application of various techniques to detect financial strengths and weaknesses of a firm. (Kuchhal, 2008). Hence, financial performance analysis is also termed as financial health check- up of any business concern. Regular financial health check-up any financial institution is necessary to maintain and protect the interest of depositors, lenders, shareholders and other stakeholders. International monetary authorities such as International Monetary Fund and World Bank directed their member countries to conduct regular financial health check -up of FIs to reform financial sector. In order to reform financial sector, the World Bank is constantly providing technical and financial support to reengineer Nepal Rastra Bank (NRB) and restructure Nepal Bank Ltd. and Rastriya Banijya Bank (NRB, 2016).

Health of individual FIs affects the health of financial sector. Micro and macro factors affect the financial health of individual FIs. Political stability and the real sector growth are major macro factors whereas capital base, quality of assets, liquidity position, management quality, market sensitivity and earnings are micro factors (Saunders & Cornett, 2004). There are so many techniques available today to evaluate financial performance of banks and financial institutions. Among them, CAMEL model of financial analysis is considered more efficient. Under CAMEL model, five (now six) critical dimensions are used to evaluate financial

performance regarding bank's operations and performance (Sahajwala, 2000). CAMEL is an effective tool to analyze financial performance for examiners and regulators (Barr, Killgo, Seims, & Zimmel, 2002). Different aspects of a bank based on various information are used under CAMEL model to detect financial soundness. Hirtle and Lopez (1999) stress that CAMEL model is highly confidential to project business strategy for the bank's senior management and supervisory staff. Cole and Gunther (1998) carried out a study as a pioneer by using CAMEL model in rating bank's performance. The study carried out by Gasbarro, Sadguna, and Zumwalt. (2002) and Baral (2005) proved the effectiveness of this model to analyze financial performance of commercial banks and financial institutions. This study, therefore, attempts to examine the financial performance analysis based on CAMEL components and their influence on the profitability of the Nepalese BFIs.

Parameter Description

Capital Adequacy

Capital adequacy is one of the major components of CAMEL model. It is used to find out the bank's ability to meet operational losses. It protects bank from going to bankrupt and to maintain the confidence of the depositors in the bank. Sound capital base enable the bank to maximize profit whereas poor capital base give birth to many defects (Bhandari, 2003; Kleff & Weber, 2008).

In order to measure capital adequacy, bank capital is divided into Tier I and Tier II. Tier I (core/primary) capital is the summation of paid-up capital, share premium, non-redeemable preference share, general reserve fund, accumulated profit, capital redemption reserve, capital adjustment fund, and other free reserve. Amount of the goodwill, fictitious assets, and investment in the financial instruments issued by an organized organization in excess to the limit specified by NRB should be reduced to obtain core capital. Similarly, Tier II (supplementary) capital is the summation of general loan loss provision, assets revaluation reserve, hybrid capital instruments, subordinated term loan, exchange equalization reserve, excess loan loss provision, and investment adjustment reserve (NRB, 2019).

Commercial banks (Class A) need to maintain CAR 11% based on Capital Adequacy Framework, 2015, whereas Development banks and Finance companies (Class B and Class C) need to maintain CAR 10% based on Capital Adequacy Framework, 2007 (Updated July 2008)

(NRB, 2019). Core capital ratio (CCR), capital adequacy ratio, (CAR), debt equity ratio etc. can be used to examine capital adequacy. In this study capital adequacy ratio, CAR (total capital as a percentage of risk weighted assets) is used to examine the capital adequacy position of BFIs.

Assets Quality

Another major component of CAMEL model to analyze management evaluation and bank's performance is asset quality (Young, 1997). It is an indicator of financial solvency of banks (Whalen, 1991). Poor assets quality creates pecuniary problems and weaken capital base. Loan and advances occupy largest portion of asset side of the balance sheet and earnings made from such loans and advance take up a major part of income statement of financial institutions. Default loans have negative effects on bank's earning because these loans are not earning income. The banks with poor performing assets are often exposed to big losses. The maximum limit of fund based loan provided to a single borrower is 25 percent of its primary capital. Similar, bank can provide the non-fund base loan up to 50 percent of its core capital (NRB, 2019).

NRB has directed BFIs to classify loans into performing loan and non-performing loans. Performing loan consists of pass loan and watch list loan. The loans that are not due and past due for a period up to three months fall under performing loans and the loans that are past due more than three months falls under non-performing loans. Non-performing loans include three categories of loan. They are: substandard, doubtful, and bad debt/loss. Financial institutions need to maintain one percent provision for pass loan, five percent for watch list loan, 25 percent for substandard loan, 50 percent for doubtful loan and 100 percent for bad loan (NRB, 2016).Loan loss provision set aside for performing loans is defined as general loan loss provision and loss provision set aside for non-performing loan is defined as specific loan loss provision. NRB uses composition of assets, nonperforming loan to total loan ratio, net nonperforming loan to total loan ratio as the indicators of the quality of assets of BFIs. In this study, non-performing loan ratio (non-performing loan as a percentage of total loan and advance) is used to assess assets quality.

Management Efficiency

Management efficiency is used to measure efficiency and effectiveness of the bank's management. Success or failure of any organization largely depends upon managerial capability regarding business affairs. Higher the managerial efficiency, higher will be the organizational

success and vice versa. There are so many parameters to judge management efficiency of the bank. It is really difficult to find an independent indicator. However, William, Looney, and Wansley (1986) and Wheelock and Wilson (2000) incorporate measures of management efficiency that are also frequently used in practice.

Expenses ratio, earning per employee, cost per loan, average loan size, credit to core capital and deposit ratio can be used to evaluate management quality. Credit to core capital and deposits ratio (CCD ratio) indicates the ability of the BFIs to convert the deposits and core capital into high yielding advances. Hence, this study uses CCD ratio (credit as a percentage of core capital and deposits) is used to evaluate management efficiency.

Earning

It is used to determine ability of the bank to earn sufficient earning to meet required rate of return of capital providers and explain the growth of earnings in future. Stable and growing earnings help banks to win confidence of stakeholders (Grier, 2007).Financial institutions must earn reasonable profit to support asset growth, build up adequate reserves and enhance shareholder's value. There is negative relationship between profitability and financial distress. Return on assets (ROA), return on equity (ROE) operating profit margin, net profit margin, absolute measures such as interest income, net interest income, noninterest income, net non-interest income, non-operating income, net non-operating income are commonly used profitability indicators. Return on assets (ROA) and return on equity (ROE) are major component of profitability. This study, therefore, uses ROA (net income as a percentage of total assets) and ROE (net income as a percentage of equity) to judge the earnings efficiency of BFIs.

Liquidity

Liquidity refers to the ability of a bank to meet its short-term obligations and ability to meet own loan commitment. In case of depositary FIs, liability side liquidity risk arises when depositors of FIs unexpectedly withdraw their deposit and assets side liquidity risk arises due to unexpected demand of loan of commitment holders. Both type of liquidity risk are not desirable for FIs(Jenkinson, 2008).There is negative relationship between size of liquid assets and risk of distress(Chaplin, Emblow, & Michael 2000). Similarly, Arif and Anees (2012) provide empirical evidence on this. Low liquidity threatens the bank's solvency position whereas high liquidity threatens the bank's profitability. Therefore, there must be tradeoff between liquidity and profitability. Purchased liquidity and storing liquidity are the major

source to fulfill liquidity requirement. Different ratios such as loan to total deposit ratio, cash and equivalents to total assets ratio, cash and equivalents to total deposit ratio, NRB balance to total deposit ratio, liquid assets to total deposit ratio are used to measure the liquidity position of BFIs. This study uses liquid assets to total deposit ratio to evaluate liquidity position. Liquid assets includes cash balance, bank balance with NRB and other BFIs, money at call, placement up to 90 days and the investment in government securities. In order to obtain net liquid assets, borrowings repayable up to 90 days are deducted from liquid assets (NRB,2016).

Liu (2011) carried out a study to determine the effect of CAMEL variables on the bank performance in Chinese banking sector. return on assets and return on equity were taken as dependent variables and capital adequacy, asset quality, management, earning and liquidity were taken as independent variables. Multiple linear regression analysis was used to examine relationship between dependent and independent variables. On the basis of analysis, he concluded that capital adequacy ratio, NPL to total loans ratio, costs to income ratio, net interest rate margins, and loans to deposits ratio are the major determinants of return on assets. Similarly, costs to income ratio, operating expenses to assets ratio, and Loans to deposits ratio are the major determinants of return on equity. Azizi and Sarkani (2014) examined the financial performance of Mellat Bank using CAMEL model. They concluded that there is positive significant relationship between liquidity, management quality and earnings with the bank's profitability. But there is no relationship between capital adequacy and assets quality with bank financial performance. This finding was just opposite the findings of Liu (2011). Ifeacho and Ngalawa (2014) examined the effect of bank-specific micro variables and macroeconomic variables on bank performance as measured by return on assets (ROA) and return on equity (ROE) in South African banking sector. The study found that all bank-specific variables such as asset quality, management quality, and liquidity have significant positive relationship with ROA and ROE. The most surprising is that capital adequacy has significant negative relationship with ROA, while its relationship with ROE is significant and positive. Karri, Meghani and Mishra (2015) carried out a comparative study of public sectors - Bank of Baroda and Punjab National Bank through CAMEL model using14 CAMEL variables. They concluded that both banks maintained higher level of CAR than the prescribed level, 10%. Out of 14 ratios, Bank of Baroda is the best for (6ratios) followed by Punjab National Bank (5 ratios). Meena (2016) conducted a study on financial analysis of selected banks using CAMEL approach with reference to Indian banking. This study concluded that out of 17 CAMELS variables which are taken as independent variables, profit per employee, debt-equity ratio, total

advances-to-total deposits ratio, net NPA's-to-total advances ratio are the major determinants of performance of the banks as measured by ROA. There is negative relationship between NPA to total advance and ROA and positive relationship between profit per employee, debt-equity ratio, total advances-to-total deposits ratio and ROA. Singh and Rastogi **(**2017) used CAMEL model based on longitudinal study to analyze performance analysis of public and private sector banks. The study was conducted in between five years gap of earlier study on same set of sample banks. The study showed that there is no uniformity regarding financial performance in between five years gap. Rank of HDFC Bank, PNB, Axis Banks and SBI are changed.

In the context of Nepal, few studies have been carried out on the financial analysis of Nepalese financial institutions in the framework of CAMEL. Baral (2005) used CAMEL model with reference to joint venture banks in Nepal. He concluded that though joint venture commercial banks are well capitalized, their capital base relative to the risk weighted assets is not strong. Quality of assets of joint venture banks is satisfactory. Management quality and earning/profitability of joint venture banks are above industry average. Jha and Hui (2012) examined financial performance of public sector, joint venture and private sector commercial banks in Nepal with the help of CAMEL model. They found that public sector banks have poor financial performance as compared to private sector and joint venture banks. Private sectors banks are equally likely as compare to joint venture banks. The regression analysis showed that capital adequacy ratio (CAR), interest expenses to total loan and net interest margin (NIM) have significant relationship with return on assets, ROA. Likewise, capital adequacy ratio has considerable effect on return on equity, ROE. Maharjan (2016) examined the impact of bank specific micro variables and macroeconomic variables on profitability of Nepalese commercial banks for the period of 2009 to 2014. He concluded that capital adequacy and liquidity position play significant role to influence profitability. The result showed that capital adequacy, credit risk, and bank size have positive relationship with return on assets, return on equity and net interest margin. Pradhan and Parajuli (2017) examined the effect of capital adequacy and cost income ratio on the performance of Nepalese commercial banks. They found that there is positive relationship between bank sizes with return on asset (ROA). On the other hand, there is a negative relationship between capital adequacy and ROA. This finding was just opposite the finding of Maharjan(2016). The result also showed that there is positive relationship of capital adequacy, bank size and debt to equity ratio with ROE. Bhattarai (2018) used regression models to test the impact of bank specific and macro-economic variables

on bank performance, ROA. He concluded that bank specific variables play major role to influence ROA as compared to macroeconomic variables.

The importance of this study may be viewed from its contribution to add value to the existing body of the literature. Most of the studies were concentrated on financial analysis of selected bank and financial institutions but the study on financial analysis of whole financial institutions needs to be addressed in Nepalese context. This study therefore will address the research gap on the same.

Data and Methods

This study is based on descriptive cum causal research designs. The descriptive research design has been adopted to describe real situation and facts regarding CAMEL variables of Nepalese financial institutions. Similarly, causal research design is used to detect the relationship of CAMEL variables on the profitability of Nepalese BFIs. More specifically, the study tries to analyze the impact of capital adequacy, assets quality, management efficiency, earning and liquidity on the profitability of Nepalese financial institutions. Indicators of each component are used on the basis of data obtained from publications of Nepal Rastra Bank.

The study is based on secondary data. The necessary are collected from various publications published by Nepal Rastra Bank (NRB) such as banking and financial statistics, bank supervision reports, and financial stability report. As on mid-July 2019, there are 28 class"A" commercial banks, 29 class "B" Development banks, 23 and class "C" finance companies (NRB,2019). Hence, the population of the study comprise of all commercial banks, development banks, and finance companies. This study is based on entire population. In this study an attempt is made to analyze financial performance of entire population covering five accounting years from 2014/15 to 2018/19.

The collected data is analyzed using descriptive statistics, correlations and linear regression analysis. Mean and standard deviation are used to analyze the general trends of the data from 2014/15 to 2018/19.The correlation analysis shows the direction of the relationship among the variables while the regression analysis used in the study provides both the magnitude as well as the direction among the variables. A pooled linear regressions model and t-static is used to determine the relative importance of each independent variable in influencing profitability. Those data are analyzed with the help of SPSS version 16 and Ms-Excel office package and the output of the analyzed data are presented in tables as and when necessary.

The econometric models employed in this study tries to analyze the relationship between

CAMEL variables and profitability. The following regression model is used to examine relationship of CAMEL variables and profitability of BIFs.

From the conceptual framework, the function of dependent variables (Return on assets, ROA and Return on equity, ROE) takes the following form:

$$ROA= f \text{ (CA, AQ, ME, ROE,LIQ).}$$
$$ROE= f \text{ (CA, AQ, ME, ROA,LIQ).}$$

The model estimated in the study assumes that return on assets, ROA and return on equity, ROE is the dependent variables and capital adequacy (CA), assets quality (AQ), management efficiency (ME), earnings (E), and liquidity (LIQ) are independent variables. To analyze the impact of independent variables on dependent variables the model has been developed as follows:

First Model

In this model, ROA is taken as dependent variable and capital adequacy (CA), assets quality (AQ), management efficiency (ME), earnings (ROE), and liquidity (LIQ) are taken as independent variables. The model is presented as follows:

$$ROA= \beta 0+ \beta_1 CA + \beta_2 AQ+ \beta_3 ME + \beta_4 ROE+ \beta_5 LIQ+e.$$

Second Model

In this model, ROE is taken as dependent variable and capital adequacy (CA), assets quality (AQ), management efficiency (ME), earnings (ROA), and liquidity (LIQ) are taken as independent variables. The model is presented as follows:

$$ROE= \beta 0+ \beta_1 CA + \beta_2 AQ+ \beta_3 ME + \beta_4 ROA+ +e.$$

Only Multicollinearity effect is identified by the Variance Inflation factor (VIF) technique, which is a statistic calculated for each variable in the model. Theoretically, a VIF greater than 10 suggest that the concerned variable is multi-collinear with others in the model and need to be excluded from the model. None of the VIFs is high except ROE with liquidity. Hence liquidity is excluded in second model.

Results and Discussion

This section tries to analyses the indicators of the financial performance of BFIs in the CAMEL framework. Only the indicators permitted by the publicly available information have been used to analyze the financial performance of BFIs.

Capital Adequacy

This ratio is used to find out the ability to meet operational losses. The higher the CAR ratio, stronger the BFIs and the more will be the protection of investors. The commercial banks need to maintain 11 percent capital adequacy ratio as per latest NRB norms. Similarly, development banks and finance companies need to maintain 10 percent capital adequacy ratio.

Table 1

Indicators of Capital Adequacy (Percentage of Risk Weighted Assets)

Year	Com.Bank	Dev.Bank	Fin. Co	Overall
2014/15	11.90	16.10	21.50	12.90
2015/16	12.12	15.31	22.22	12.91
2016/17	14.72	20.44	21.19	15.40
2017/18	14.61	18.99	20.65	15.15
2018/19	13.95	15.95	20.42	14.29
Mean	13.46	17.36	21.20	14.13
SD	1.36	2.23	0.714	1.19

Table 1 shows that the average CAR maintained by commercial banks, development banks and finance companies are respectively 13,46%, 17.36% and 21.2%. It indicates that commercial banks, development banks and finance companies meet NRB standard regarding CAR. The comparison among the CAR of each class financial institutions implies that finance companies have stronger capital base followed by development banks and commercial banks. The excess of capital adequacy is due to mandatory requirement of increase in paid up capital and merger and acquisition of bank and financial institutions.

Assets Quality

Assets quality is an important parameter to judge financial strength of any BFIs. The main objective to calculate the assets quality ratio is to measure the composition of non-performing loan (NPL) as a percentage of the total loan and advance. The increasing trend of ratios shows the deteriorating quality of assets of BFIs and vice versa. Though five percent to 10 percent of non-performing loan is considered as satisfactory level of quality of bank assets, attempt should be made to minimize non-performing loan ratio for the excellency of assets quality.

Table 2

Indicators of Assets Quality (Percentage of Total Loan and Advance)

Year	Com.Bank	Dev.Bank	Fin. Co	Overall
2014/15	2.60	3.50	14.50	3.30
2015/16	1.82	1.48	14.42	2.19
2016/17	1.54	1.36	13.37	1.89
2017/18	1.41	1.09	10.83	1.60
2018/19	1.40	0.92	8.80	1.52
Mean	1.75	1.05	12.38	2.10
SD	0.50	1.67	2.49	0.72

Note: Com. Bank= Commercial bank, Dev. Bank= Development Bank and Fin. Com= Finance Company

The average NPL ratio of commercial banks, development banks and finance companies are respectively 1.75%, 1.05% and 12.38%.The comparison among the NPL ratio of each class financial institutions implies that quality of assets of development banks is better than finance companies and commercial banks. NPL ratio of commercial banks and development banks are less than that of overall BFIs. The more positive signal of all BFIs is that NPL ratio is decreasing trend continuously year by year.

Management Efficiency

Success of any organization depends upon sound management. There are different indicators to evaluate management efficiency. Here, credit to core capital and deposit ratio (CCD) is used to judge management efficiency. This is because CCD ratio measures the ability of the BFIs management in converting core capital and deposits available into high earning assets .The BFIs should not cross more that 80 percent CCD ratio as per NRB norms.

Table 3

Indicators of Management Efficiency (Percentage of Total Deposit)

Year	Com.Bank	Dev.Bank	Fin. Co	Overall
2014/15	72. 00	70.80	73.20	71.80
2015/16	75.97	74.56	71.08	75.59
2016/17	79.57	76.82	76.00	79.17
2017/18	77. 07	72.78	77.88	76.81
2018/19	75.36	76.42	74.01	75.22
Mean	75.99	74.28	74.43	75.71
SD	2.75	2.52	2.61	2.68

Table 3 shows that the average CCD maintained by commercial banks, development banks and finance companies are respectively 75.99%, 74.28% and 74.43%. These ratios are below 80 percent. It indicates that commercial banks, development banks and finance companies meet NRB standard regarding CCD ratio. The comparison among the CCD of each class financial institutions implies that management of commercial banks is slightly better than all other financial institutions. CCD ratio of commercial banks is slightly greater than overall CCD ratio and the rest financial institutions have slightly less than overall CCD ratio.

Earning Capacity

Earning capacity shows the joint effect of liquidity, leverage and assets management on the firm's profitability. It determines the ability of the bank to earn consistently and explain the growth of earnings in future. Though different indicators can be used to measure the earning capacity, ROA and ROE are used.

Table 4

Indicators of Earnings (Percentage)

Year	Com. Bank		Dev. Bank		Fin. Co		Overall	
	ROA	ROE	ROA	ROE	ROA	ROE	ROA	ROE
2014/15	1.56	22.65	2. 09	20.78	2.59	26.55	1.69	22.72
2015/16	1.75	22.41	2.32	22.51	3.05	30.36	1.86	22.80
2016/17	1.74	17.32	2.25	17.95	2.81	28.99	1.82	17.71
2017/18	1.73	17.07	1.66	14.14	1.54	12.54	1.72	16.58
2018/19	1.75	16.73	1.55	15.15	1.60	13.65	1.72	16.47
Mean	1.71	19.24	1.97	18.11	2.32	22.42	1.76	19.26.
SD	0. 08	3. 02	0.35	3.57	0.70	8.63	0. 07	3.23

As per conventional rule of rating, the BFIs having the ROA less than 1 fall in the marginal earning performance zone. The average ROA maintained by commercial banks, development banks, finance companies and overall BFIs are respectively 1.71%, 1.97% 2.32% and 1.76%. These ratios are greater than 1%, marginal earning performance zone. The comparison among the ROA of each class financial institutions implies that finance companies are better performer followed by development banks and commercial banks. Similarly, the average ROE maintained by commercial banks, development banks, finance companies and overall BFIs are respectively 19.24%, 18.11%, 22.42% and 19.26%. On the basis of ROE, finance companies stand at first and then followed by commercial bank and development banks. ROE of all financial institutions is in decreasing trend. This is due to mandatory requirement

of increase in paid up capital as imposed by the NRB.

Liquidity Position

Financial institutions should have adequate liquidity to minimize both asset side liquidity risk and liability side liquidity risk. The liquidity should be neither more nor less. Excess liquidity threatens the firm's profitability and liquid deficit threatens the firm's solvency. Therefore, FIs should strike the trade-off between the profitability and liquidity. Liquid assets to total deposit ratio are used to evaluate liquidity position.

Table 5

Indicators of Liquidity (Percentage)

Year	Com.Bank	Dev.Bank	Fin. Co	Overall
2014/15	26.45	31.34	41.52	27.64
2015/16	26.17	32.75	44.8	27.6
2016/17	26.00	31.52	34.27	26.74
2017/18	24.85	32.35	36.74	25.91
2018/19	24.41	27.57	36.27	25. 06
Mean	25.58	31.11	38.72	26.59
SD	0.89	2. 06	4.32	1.11

The liquid assets to total deposit ratio maintained by commercial banks, development banks, finance companies and overall BFIs are respectively 25.58%, 31.31%, 38.72% and 26.59%. On the basis of liquid assets to total deposit, finance companies stand at first and then followed by development banks and commercial banks.

Having indicated the descriptive statistics, the Pearson Correlation Coefficients have been computed and results are presented. Table 6 presents correlation coefficients among variables used in this study. The dependent variables are ROA and ROE. The independent variables are capital adequacy as measured by CAR, assets quality as measured by NPL ratio, management efficiency as measured by CCD, earnings as measured by ROA and ROE and liquidity as measured by liquid assets to total deposit ratio.

Table 6

Correlation Matrix of Overall Financial Institutions

Variables	CA	AQ	ME	ROA	ROE	LIQ
CA	1					
AQ	.762**	1				
ME	-.138	-.25	1			

ROA	.565*	.632*	-.338	1		
ROE	.186	.534	-.429	.856**	1	
LIQ	.863**	.852**	-432	.662**	.432	1

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

* Correlation is significant at the 0.05 level (2-tailed).

Table 6 shows that capital adequacy (CA) has positive correlation with assets quality (AQ), ROA, ROE and liquidity (LIQ) but negative relationship with management efficiency (ME). Similarly, AQ has positive relationship with ROA, ROE and LIQ but negative relationship with ME Likewise, ME is negatively correlated with ROA, ROE and LIQ. ROA is positively correlated with ROE and LIQ. ROE also positively correlated with LIQ.

To examine the relationship between profitability measures and explanatory variables, two regression analyses were run. The first regression analysis was undertaken to investigate the relationship between return on asset and independent variable. The regression analysis result (Table 7) shows that R-squared statistics is 95%. The result indicates that change in the independent variable explain 95% of the change in the dependent variable. That is capital adequacy, asset quality, management efficiency, ROE and liquidity collectively explains 95% of ROA. The remaining 5% of change was explained by other factors which are not included in the model. The F-value of 34.354 is also significant at 1 % level of confidence. Thus, these five variables used in the CAMEL framework are good explanatory variables of ROA of the Nepalese BFIs. Hence, the regression equation of ROA is given by,

$$ROA= -2.883+ 0.\ 087CA -0.041\ AQ+ 0.021ME + 0.086\ ROE+ 0.\ 010LIQ$$

Table 7

Estimated Regression Results of Capital Adequacy, Assets Quality, Management Efficiency, Return on Equity and Liquidity on ROA of Nepalese BFIs.

Intercept	CA	AQ	ME	ROE	LIQ	R2	F Value
-2.883	0.\ 087**	-0.\ 041**	0.\ 021	0.\ 086**	0.\ 010	0.95	34.364**
(-1.682)	(3.462)	(-2.674)	(1.\ 055)	(9.372)	(0.534)		

a.   Figures in parenthesis are t-values

b.   The sign asterisk (*) indicates that result is significant at 5 % and double asterisk (**) sign indicates that result is significant at 1 %.

Table 7 shows that the beta coefficient of capital adequacy, management efficiency, ROE and liquidity against ROA are positive. This indicates that there is direct relationship between four independent variables and ROA and statistically significant with capital adequacy and

ROE at 1 % level of confidence. On the other hand, assets quality has negative relationship with ROA. There is statistically significant inverse relationship between assets quality and ROA. The relationship of ROA with capital adequacy is similar to the findings of Maharjan (2016) but just opposite to the findings of Ifeacho and Ngalawa (2014) and Pradhan and Parajuli (2017). The relationship of ROA with management efficiency and liquidity is similar to the findings of Meena (2016).

The second regression analysis was undertaken to investigate the relationship between Return on equity and independent variable. The regression analysis result (Table 8) shows that R-squared statistics is 95.1%. The result indicates that change in the independent variable explain 95.1% of the change in the dependent variable. That is capital adequacy, asset quality, management efficiency, and ROA collectively explain 95.1% of ROE. The remaining 4.9 % of change was explained by other factors which are not included in the model. The F-value of 48.38 is also significant at 1 % level of confidence. Thus, these four variables used in the CAMEL framework are good explanatory variables of ROE of the Nepalese BFIs. Hence, the regression equation of ROE is given by,

$$ROE = 31.243 - 1.098CA + 0.467 AQ - 0.212ME + 10.489 ROA$$

Table 8

Estimated Regression Results of Capital Adequacy, Assets Quality, Management Efficiency, and Return on Assets on ROE of Nepalese BFIs

Intercept	CA	AQ	ME	ROA	R2	F Value
31.243**	-1.098**	0.467**	-0.212	10.489**	0.951	48.38**
(2.438)	(-6.313)	(3.852)	(-1.296)	(9.807)		

a.   Figures in parenthesis are t-values

b.   The sign asterisk (*) indicates that result is significant at 5 % and double asterisk (**) sign indicates that result is significant at 1 %.

Table 8 shows that the beta coefficient of assets quality and ROA against ROE are positive. This indicates that there is direct relationship between the two independent variables and ROE and statistically significant with assets quality and ROA at 1% level of confidence. On the other hand, capital adequacy, and management efficiency has negative relationship with ROE. There is statistically significant inverse relationship between capital adequacy and ROE at 1% level of confidence. The relationship of ROE with capital adequacy is just opposite to the findings of Ifeacho and Ngalawa (2014) and Maharjan (2016).

Conclusion

Commercial banks, development banks and finance companies meet NRB standard regarding capital adequacy. On the basis of capital adequacy, finance companies have stronger capital base followed by development banks and commercial banks. The assets quality as measured by NPL ratio implies that quality of assets of development banks is better and then followed by commercial banks and finance companies. Nonperforming loan ratios of all BFIs are far below the general convention (5 % to 10%). The NPL ratio of all BFIs is in decreasing trend also. Management efficiency as measured by credit to core capital and deposit ratio (CCD) indicates that the ability to convert core capital and deposits available into high earning advances of commercial bank is better than other BFIs. All BFIs maintain CCD as per NRB norms. Earning performance as measured by ROA indicates that finance companies are better performer followed by development banks and commercial banks. On the basis of ROE, finance companies stand at first and then followed by commercial bank and development banks. ROE of all financial institutions is in decreasing trend due to mandatory requirement of increase in paid up capital as imposed by the NRB. The liquidity as measured by liquid assets to total deposit ratio indicates that finance companies stored high liquidity and then followed by development banks and commercial banks. Finance companies have high capacity to meet good loan request proposal as compared to other FIs.

There is significant positive relationship of ROA with capital adequacy and ROE. On the other hand, ROA has significant negative relationship with assets quality. Similarly, there is significant positive relationship of ROE with assets quality and ROA. On the other hand, ROE has significant negative relationship with capital adequacy These findings are partially consistent with the findings Maharjan(2016) Ifeacho and Ngalawa (2014), Pradhan and Parajuli (2017) and Meena (2016).Hence, what we conclude that Capital adequacy and assets quality are the major determinants of ROA and ROE.

The current study uses only some representative financial ratios of the CAMEL model. The financial ratios included in the study may not enough to evaluate the bank's capital adequacy, asset quality, management efficiency, earning ability and liquidity. Therefore, it is better to conduct future research by considering additional financial ratios. Similarly, performance of the bank can also be judged on the basis of economic value added (EVA) in addition to the ROA and ROE measures. In this study, only five components of CAMEL are considered to analyze financial performance. Hence, performance analysis including sixth component (sensitivity to the market) would be more effective.

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