International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 05 | May - 2023 Impact Factor: 8.176 ISSN: 2582-3930

DETERMINANTS OF COMMERCIAL BANKS LENDING BEHAVIOR IN NEPAL

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Abstract

The purpose of the study is to determine the commercial banks' lending behavior in Nepal. The balance panel secondary data were used. The descriptive and causal comparative research designs have been adopted for the study. The pooled data of 10 commercial banks for the period 2011/12 to 2020/21 have been analyzed using regression model. The data has been analysis with help of E view software student version (2022). The loan and advance taken as dependent variables whereas liquidity, cash reserve ratio, deposit, capital adequacy ratio and lending rate were independent variables. The result shows that deposit and capital adequacy ratio have positive and significant effects on loan and advance. But the liquidity has negative and statically significant with loan and advance. This concluded that deposit and capital adequacy ratio are major determinants of loan and advance.

Key words: Lending behaviour, loan and advances, liquidity, cash reserve ratio, deposit, capital adequacy ratio and lending rate

1. INTRODUCTION

Commercial banks contribute to economic development by providing financial services and frequently allocating their deposits to individuals, company developers, entrepreneurs, competitors, and the government in order to generate capital accumulation and profitability. Commercial banks have played an important role in mobilizing funds among sectors such as individual households, corporate firms, and the government. Investment activities, corporate expansion, and industrial development are heavily reliant on cash, without which a country's economy may stagnate, if not collapse. Furthermore, if bank credit is not available, productive units will be forced to keep larger working capital balances to meet fluctuating fund requirements. This is uneconomical because big sums would have to be held idle for some periods, while such sums may be insufficient during seasonal peaks of company activity.

Conductive bank lending is critical to economic activity and wellbeing, particularly in Nepalese industry. Banks are the largest and most significant fund primers in the economy; lending is the core activity and can be defined as the commercial bank's heart. Credit aids in increasing company output, capital expenditure, and societal living standards. According to Barhe T.G (2019), commercial banks receive deposits from clients with surplus money while also using the funds to offer loans to deficit units (Table, 2016 Rosenkronzi 2020). Chen (2014) stated that commercial banks must understand the elements that drive bank lending behavior in order to maximize productivity and performance.

Because bank lending is the primary source of earnings and entails a significant amount of risk, banks should exercise caution when analyzing the various determinants of bank lending behavior. Bank lending has generated long-term profit and liquidity (Timsina, 2016). Bank lending practices have shed more light on the economic development and sustainable environment of developing countries (Alkhazaleh, 2017).

Commercial bank loans and advances are the primary source of income. Banks have mobilized their deposits in these areas. Many scholars from around the world have conducted research on commercial banks' lending behavior. In Nepal, the literature of Timilsina (2016), Bhattarai (2016), and Bhattarai (2019) on these subjects has been studied. The scholar then felt the study in the same issue in a new way. The research loan and advance has been determined by several diverse aspects such as bank specific and macroeconomic factors involvement, as well as priori studies variables. The following is the study's major question. What factors influence commercial banks' lending behavior? Scholars used descriptive statistics, correlational and casual comparative study designs to answer the research problem. The ten commercial banks were picked using a convenient sampling technique. The study's primary goal was to investigate commercial banks' lending behavior in Nepal.

The current study has been structured as follows in order to meet the research objectives of the investigations. The second segment includes literature reviews. The third section has gone into detail about the research technique. Section four contains the results and discussions. The final section of this study includes a summary and conclusion based on the study's research findings.

2. LITERATURE REVIEW

There is a large empirical literature on the factors related with commercial bank lending behavior.

Olokoyo (2011) analyzed the lending behavior of Nigerian commercial banks from 1980 to 2005 in his study. The study discovered a positive and significant relationship between deposits and lending. According to the report, banks should prioritize deposit mobilization in order to ensure the long-term development of both the banks and the nation.

Malede (2014) investigated the drivers of commercial bank lending in the Ethiopian banking market using panel data from eight institutions from 2000 to 2011. The study's findings suggest a significant association between bank lending and bank size, credit risk, GDP, and liquidity ratios. On the contrary, the study discovered that deposit, investment, cash reserve ratios, and interest rates had no significant effect on the lending activities of Ethiopian banks.

Olumuyiwa, Oluwatosin, and Chukwuemeka (2012) investigated the lending behavior of Nigerian commercial banks using secondary data from 1975 to 2010. Loan and advance were considered dependent variables, whereas deposit volume, annual average exchange rate, investment portfolio, lending interest rate, gross domestic product, and cash reserve requirement ratio were considered independent variables. The study revealed that, with the exception of investment portfolio and lending interest rate, other variables play positive and substantial impacts in determining lending by Nigerian commercial banks. The credit planner in Nigeria should be concerned with the important aspects that influence bank credit policies.

Mukhanyi (2016) investigated loan behavior among commercial banks in Kenya using panel data from 35 commercial banks from 2006 to 2015. The fixed effects model revealed that bank capitalization, deposit volume, and interest rate spread were all positive, as were the effects of lending behavior. The real GDP growth rate was negative, and this had a key impact in the situations of Kenyan commercial banks.

Timsina (2016) investigated commercial bank lending in Nepal from 1996 to 2015 using secondary panel data from 24 commercial banks. The study's goal was to assess the effectiveness of Nepalese commercial banks' lending determination. According to the study, assets, capital, and liquidity have a positive impact on bank lending; therefore, the central bank should focus more on effective and realistic liquidity monitoring and forecasting. Banks that want to lend more should enhance their assets, capital, and liquidity position, which will protect them during a liquidity crisis.

Bhattarai (2016) evaluates Nepalese commercial banks' lending behavior using variables such as loans and advances to measure lending behavior and bank size, liquidity, investment portfolio, cash reserve ratio, and deposit to capital ratio as determinants. The research uses data from four commercial banks in Nepal from 2007 to 2014. Data was gathered from Nepalese banks and evaluated using regression analysis. Based on the regression results, it was discovered that bank size is statistically significantly associated to loans and advances. According to the report, Nepalese banks are more inclined to issue credit when their total assets grow. However, the study contends that the cash reserve requirement ratio, liquidity, and investment portfolio reduce banks' willingness and proclivity to extend additional credit to customers. This was due to the regression analysis yielding a substantial negative outcome. The deposit-to-capital ratio has a considerable positive effect on lending behavior, according to the study. As a result, noted that banks have more on the ground to lend loans to clients when they are able to mobilize customer savings.

Bhattarai (2019) investigated the drivers of commercial banks' lending behavior in Nepal. The study used 10 commercial banks secondary panel data that covered a six-year period (2012/13-2017/18) of bank specific characteristics and to find external factors that influence commercial banks' lending behavior in Nepal. According to the regression estimation results, the liquidity ratio, interest rate spread, and exchange rate were found to be relevant in affecting lending behavior in Nepal's commercial banks. The positive effect of the exchange rate implies that Nepalese commercial banks have sufficient knowledge of the world market and commerce, and that they are prepared to meet both short-term and long-term commitments. The central economic policy-managed inflation has a positive and significant impact on lending volumes among Nepalese commercial banks. Similarly, the findings revealed that interest rate spreads were negatively and significantly spread on total loans advanced to individuals and institutions. This means that as borrowing costs rise, banks considerably expand credit availability in the market. However, there appears to be a greater reluctance among borrowers to obtain additional credit in such situations. During times of economic stagnation, the majority of loans become non-performing, limiting credit available to the private sector.

Ajayi and Atanda (2012) explore the impact of liquidity ratio, inflation, exchange rate, minimum policy rate, and cash reserve ratio on commercial bank loans and advances in Nigeria from 1980 to 2008. It demonstrates that the exchange rate and cash reserve ratio are statistically significant on commercial bank loans and advances, whereas the other regressors are not. Furthermore, the study discovers no long-run

relationship between the model's independent and dependent variables. Thus, the study contends that monetary policy tools in Nigeria are not long-term credit stimulants.

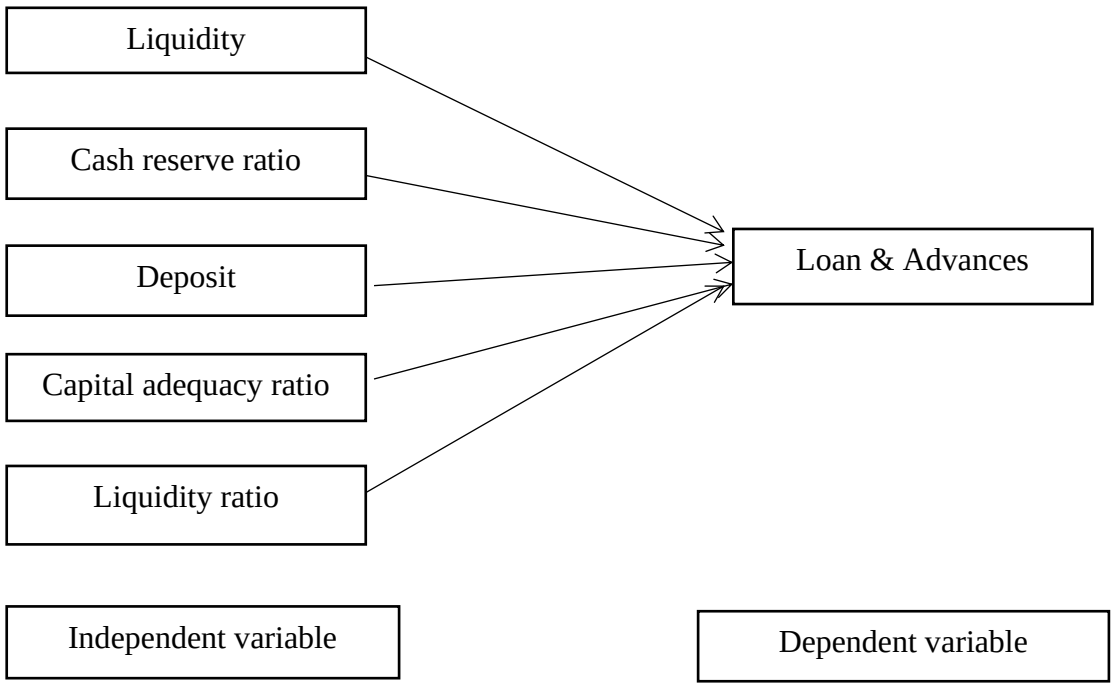
This study has drawn the conceptual framework to determine the lending behavior of commercial banks in Nepal based on a rigorous investigation and evaluation of the literature. As a result of the literature evaluation, the present has chosen the following research approach to meet the study's objectives.

3. RESEARCH METHODOLOGY

The purpose of this study was to look at the factors that influence commercial bank lending in Nepal. This study used a quantitative technique to determine the determinants that affect commercial bank lending in light of the research purpose, hypotheses developed, and quantitative character of the data. As a result, an explanatory research design was used in this study to investigate the cause and effect correlations between bank lending and its determinant variables.

10 commercial banks are chosen from a total population of 21 commercial banks in Nepal for the years 2011/12 to 2020/21. The study relied on secondary data, specifically the annual financial reports, including balance sheets and income statements, of the commercial banks under consideration.

Research Framework



The Model

The following model was used to estimate loan and advance, often known as lending behavior.

$Loan_{it} = \beta_0 + + \beta_1 (LIQ)it + \beta_2 (CRR)it + \beta_{3(} DEPO)it + \beta_4 (CAR)it + \beta_5 (LR)it + eit$

Where, Loan is the Total loans and advances , LIQ is the Liquidity, , CRR is the Cash Reserve Ratio, DEPO is the Deposit, CAR is the Capital Adequacy Ratio, LR is the Lending Rate, and i is the ith Banks, t is the time, β_1, β_2, β_3, β_4, and β_5 are the coefficients for each explanatory variables in the model, ε is the error term.

Loans and Advances

This is our model's dependent variable. It is defined as the total annual gross loans and advances advanced by commercial banks to both the public and private sectors. This was gathered from the assets side of the various banks' balance sheets. The trend of total loans and advances thus recorded the behavior of banks' lending through time, demonstrating whether banks are lending more in the current period than in previous periods.

Cash Reserve Ratio (CRR)

The Cash Reserve Ratio (CRR) is the percentage of deposits that commercial banks are required by the central bank to retain as cash. The reserve ratio is a key tool of an economy's monetary policy and plays a significant role in managing the money supply. When the central bank wishes to enhance the economy's money supply, it reduces the reserve ratio. As a result, commercial banks have more funds to release as loans, increasing an economy's money supply. In contrast, to limit inflation, the CRR is often increased, reducing the lending ability of banks and, as a result, reduces the money supply in an economy.

Deposits

According to Tomola (2013), lending activity is only possible if banks can raise sufficient funds from their consumers. Because commercial banks rely on depositors' funds for funding, there are some relationships between the banks' ability to mobilize deposits and the amount of credit granted to customers. As the total deposit grows, so does the total advance and loan (Ajay 2007). An increase in a

bank's deposit is likely to strengthen its ability to lend more money to its customers. Lending and deposits move in tandem because higher deposit growth indicates increased demand for loans.

Liquidity

Liquidity indicates a bank's ability to convert its assets into cash with minimal losses (Mac Donald & Koch, 2006) and is used to calculate the impact of a bank's liquid assets on commercial bank lending (Rabab'ah, 2015). In theory, the bank's large proportion of liquid assets will directly lower the money available for lending. Because loans are illiquid assets, an increase in the volume of loans and advances indicates an increase in illiquid assets in a bank's asset portfolio.

Lending Rate

The lending rate is the interest rate charged by banks to their customers, and it is one of the most important sources of income for banks (Moussa & Chedia, 2016). Furthermore, it is one of the Central Bank's monetary policy instruments for controlling liquidity in the financial market. In theory, a high interest rate reduces loan demand because only a small number of borrowers with high-risk projects may have their demand met. According to Amano (2014), the lending rate has a detrimental impact on bank lending. Thus, a high interest rate reduces the public's desire to borrow money from banks because it raises the borrowers' financial costs.

Capital Adequacy Ratio (CAR)

CAR is a ratio that measures a bank's ability to meet time liabilities as well as other risks such as credit risk, operational risk, and so on. CAR expresses the amount of a bank's core capital as a proportion of its risk-weighted asset. According to the NRB, commercial banks must maintain a CAR of 13.1%. Many empirical studies have been conducted to examine the effect of CAR on lending, with the majority indicating a positive effect.

Hypotheses

H1: There is significant impact of liquidity on loan & advance

H2: There is significant impact of cash reserve ratio on loan & advance

H3: There is significant impact of deposit on loan & advance

H4: There is significant impact of capital adequacy ratio on loan & advance

H5: There is significant impact of liquidity ratio on loan & advance

4. Presentation and Analysis of data

Descriptive statistics

This shows descriptive statistics - mean, standard deviation, minimum and maximum values for the variables associated with 10 sample banks for the period 2011/12 to 2020/21

Table 1: *Descriptive data summary of variables*

Variables	LN Loan & Advance	Liquidity	CRR	Deposit	CAR	LR
Mean	11.0095	29.9264	15.502	11.2569	13.1108	10.4559
Max	12.4868	43.55	37.52	12.6123	17.41	14.4786
Min	9.1736	20.10	3.22	9.7217	10	7.1455
Std.	0.6719	5.5991	9.1364	0.6165	1.7720	1.8797
N	150	150	150	150	150	150

Source: Author's computation from E-views 12 SV, 2022

It can be seen that the sample commercial banks had a positive mean of loan & advance of 11.0095 with a standard deviation of 0.9719 for the fiscal year 2011/12-2020/21. Moreover, there is a less variation in the values (minimum = 9.17 and maximum =12.48) of Natural logarithm loan & advance. Among the explanatory variables, the liquidity ratio of selected banks ranges from a minimum of 20.10 to 43.55 with an average of 29.92 percent and standard deviation of 5.59. The CRR ranges in value from 3.22 to 37.52 with an average of 15.50. The deposit ranges from 9.72 at the lowest end to 12.61 at the highest, with a mean of 11.25. With an average of 10.45 and a standard deviation of 1.87, inflation varies from a low of 7.14 to a maximum of 14.47.

Correlation Analysis

In order to comprehend the link between two different variables better, a strong correlation research is conducted. The correlation coefficient uses a number that ranges from -1 to +1. The more it implies about the connection, the closer it is near +1 or -1. A number that is nearer to 0 denotes a less strong association in either direction. No association between the provided variables is presumed when the value is 0. The relationship is inverse if there is a negative sign, and direct if there is a positive sign. Although it suggests a cause-and-effect link, it is not necessary.

Table 2: *Correlation Matrix of Variables*

Correlation Probability	LN Loan & Advance	Liquidity	CRR	Deposit	CAR	LR
LN Loan & Advance	1.00000 ----------					
Liquidity	-0.3203 (0.0001)**	1.00000 ---------				
CRR	-0.2309 (0.0045)**	0.1176 (0.1518)	1.00000 ---------			
Deposit	0.9705 (00000)**	-0.1794 (0.0280)*	-0.2262 (0.0054)**	1.000000 -------		
CAR	0.2392 (0.0032)**	-0.0481 (0.5585)	-0.2344 (0.0039)**	0.2215 (0.0064)**	1.00000 --------	
LR	-0.2486 (0.0022)**	0.1144 (0.1631)	0.0285 (0.7291)	-0.2195 (0.0069)**	-0.1009 (0.2191)	1.00000 -------

Source: Author's computation from E-views 12 SV, 2022

**. Correlation is significant at the 0.01 level (2-tailed), *. Correlation is significant at the 0.05 level (2-tailed); the number in parenthesis indicates the p value.

This presents the bivariate Pearson correlation coefficients between lending behavior of commercial banks. The correlation coefficients are based on the data from 10 sample banks for the period 2011/12 to 2020/21. The result shows that there is positive relationship of loan & advance with deposit and CAR which indicates that higher the deposit and CAR, higher would be the loan & advance. Similarly liquidity, CRR and LR rate have negative relationship with loan & advance which shows that an increase in the liquidity, CRR and LR leads to a decrease in the loan & advance.

Breusch Pagan test

Table 3: *Breusch-Pagan Langrange Multiplier Test*

	Cross Section	Time	Both
Breusch Pagan	32.4647	1.0611	33.5258
Prob.	(0.0000)	(0.3030)	(0.0000)

Source: Author's computation from E-views 12 SV, 2022

Breusch-Pagan Langrange Multiplier test is used to select a suitable model for Panel data analysis.

The test has the following hypothesis:-

H0: Pooled OLS method is better than Fixed Effect and Random Effect Model.

H1: Pooled OLS method is not better than Fixed Effect and Random Effect Model.

Here, the p-value is 0 which is less than 0.05. So, Null hypothesis is rejected. It means that Pooled OLS method is not better than Fixed Effect and Random Effect Model.

Hausman Test

Table 4: *Hausman Test*

Test Summary	Chi Sq. Statistic	Chi Sq. d. f	Prob.
Cross section random	15.0205	5	0.0103

Source: Author's computation from E-views 12 SV, 2022

The p-value of this test is 0.0103 which is less than 0.05; hence, null hypothesis is rejected. This concludes that fixed effect model is appropriate for the study.

Regression Analysis

This shows regression analysis result of variables of loan & advance. The study of the regression model used in this study.

LN Loan & Advance= $\alpha + \beta 1$ Liquidity $+\beta 2$CRR $+ \beta 3$ Deposit $+ \beta 4$ CAR$+ \beta 5$ LR $+ e$

Table 5: *Panel Regression analysis of Loan & Advance*

Variable	Coefficient	Std. Error	t-statistic	Prob.
Liquidity	-0.0085	0.0029	-2.9306	0.0040
CRR	-0.0044	0.0025	-1.7369	0.0848
Deposit	1.0436	0.0209	49.8201	0.0000
CAR	0.0167	0.0066	2.5014	0.0136
LR	-0.0079	0.0049	-1.6206	0.1075
C	-0.5520	0.2834	-1.9477	0.0536
Model Summary				
R- squared	0.9778	Adjusted R- squared	0.9746	
F-statistic	302.21	Durbin Watson stat	1.6878	
Prob.	0.00000			

Source: Author's computation from E-views 12 SV, 2022

For 104 observations, 10 commercial banks from 2011/12-2020/21, as illustrated, among the explanatory factors: liquidity is found statistically significant and negative effect on loan & advance, whereas deposit ratio and capital adequacy ratio are found to be statistically positive significant effect on loan & advance. Similarly cash reserve ratio and liquidity ratio are found to be statistically insignificant effect on loan & advance.

The null form of the test is DW > R2, which states that the Durbin-Watson result should not be greater than the R-squared figure. As seen in the analysis results, DW = 1.68 and R2 = 0.98, rejecting the null hypothesis, indicating that the regression estimate result is valid. R-squared for the regression is 0.98 which implies that the variables in the current study can explain 98 percent of the variations in the loan & advance can be explained by explanatory variables and remaining 2 percent of variations of the loan & advance under investigation can be explained by other factors not included in the model. Furthermore, regarding the statistical significance of the model it's P value=0.0000 is less than 5% level, indicating that the estimated model has a high statistical significance, which increases the model's reliability and validity.

Summary of Hypotheses

The effect of independent variables on the dependent variable has been analyzed, and the results of hypothesis testing have been determined. They are summarized and illustrated below:

Table 6: *Summary of hypotheses*

Hypothesis	P- value	Remarks
H1: There is significant impact of liquidity on loan & advance	0.0040	Accept
H2: There is significant impact of cash reserve ratio on loan & advance	0.0848	Reject
H3: There is significant impact of deposit on loan & advance	0.0000	Accept
H4: There is significant impact of capital adequacy ratio on loan & advance	0.0136	Accept
H5: There is significant impact of liquidity ratio on loan & advance	0.1075	Reject

Source: Authors' Own Calculation

5. Summary and Conclusion

The banks have mobilization of deposit through the loan and advance. The main purpose of the study to determine loan and advance of commercial banks in Nepal. The loan and advance taken as dependent variables whereas liquidity, cash reserve ratio, deposit, capital adequacy ratio and lending rate were independent variables. The result shows that deposit and capital adequacy ratio have positive and significant effects on loan and advance. But the liquidity has negative and statically significant with loan and advance. The concluded that deposit and capital adequacy ratio are major determinants of loan and advance. The study recommended that the loan administration of every bank should check these variables before approved the loan and advances.

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