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DETERMINANTS OF LENDING BEHAVIOR OF COMMERCIAL BANKS IN NEPAL

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Abstract

This examined the determinants of lending behavior of commercial banks in Nepal. The study based on 14 commercial banks panel data for 2011/12 to 2020/21 over 10 year period. The study employed descriptive and causal comparative research design. The study used descriptive analysis, which included mean, minimum, maximum and Standard deviation. The determinants of lending behavior made by commercial banks in Nepal will be determined by using a fixed effect regression model. The finding of the study concluded that bank size, capital adequacy ratio, total deposit, have a positive and statistically significant effect on loan and advances. Likewise, Liquidity ratio, lending rate and inflation have a negative and statistically significant effect on Loan and advances. However the effect of gross domestic product has a negative and statistically insignificant effect on Loan and advances. The study suggested that commercial banks in Nepal should manage their lending by paying more attention to internal factor under management's control over in line with the rules and regulations of the banking sector while keeping in mind the impact of the overall economic dynamic.

Key words: Lending behavior, Loan and advances, Size, Liquidity ratio, Capital adequacy ratio, Deposit, Lending rate, GDP, Inflation rate, Panel data.

I. Introduction

Lending plays a major part in daily banking operations and is defined as the core of a commercial bank's banking activity. On the other hand, it is also one of the biggest sources of risk to the security and safety of financial institutions (Yitayaw, 2021). In today's economy, bank are regarded as the foundation for the growth of the country. It is a financial institution that facilitates the transactions of money by accepting different types of deposit, disbursing loans and providing other financial services. Deposits are the primary source of funding for bank lending. Over 94% of the funding sources in Nepal come from corporate deposits and public sources, with the remaining 6% coming from the shareholders ownership. They maintain the deposits of many individual persons, organizations affiliated with the government and business entities. With their lending and investment activities, they provide funding to those who are in need of it such as individuals, business firms and government institutions. The primary purpose is to generate credit with borrowed funds. Due to increase in private sector credit time, Commercial banks have been at the center of driving the economy (Olokoyo, 2011).

Banking lending behavior generally depends on the type of bank, capital base, deposit base, deposit density, interest rate, exchange rate, inflation, gross domestic product, liquidity, the credit guidelines periodically issued by the regulatory authority and internal policies of the banks as well as other non-economic factors. Banking lending practices may not promote economic growth, if they are not effective. On the other hand, their ineffective and imprudent banking methods can cause more serious issues in the financial instability. Bank lending decisions are influenced by both supply-side and demand side factors. The efficient management of credit is essential for the banks to balance their primary goals of liquidity, profitability and solvency. Credit growth encourage investment and economic activity, it can also have negative effects on the financial system’s stability by raising prudential risks at both the micro and macro levels (Igan & Pinheiro, 2011).The study of the factors that influence lending behavior is essential since credit makes up a significant portion of a bank’s assets because commercial banks in Nepal need to understand how to handle these huge assets in terms of their loans and advances (Timsina, 2016).

A nation’s economic development can be succeed only when development of the capital formation mechanism exist. The main cause of this long-lasting problem is due to lack of economic development and poor rate of the national economic growth. Due to increased complexity and liberalization of financial market, the problem of debt management has become one of the most important issues in economic policy. Non- performing loans were one of the several problems that commercial banks faced. They do not mobilize their deposit in an efficient manner for the development of the nation.

Commercial banks play a significant role in the financial scheme of developing nations. They always concern about how to make money and how to invest in and lend to their borrowers. By investing deposits of saving collected from customers, financial institutions offers capital to business owners for the growth of industry, trade, and business. Additionally, they offers excellent services to their customers, facilitating their economic activities, thus, rapid and integrated development of the nation is possible. When successful and trustworthy banking services are developed and carried to every nook and corner of the country. In developing country like Nepal, saving is low and dispersed in small quantities among people living in the various parts. Commercial banks mobilize these savings through their branches established in different parts of the country. Most of the researches on the bank lending behavior have been done in the developed financial markets and commercials bank. The study problem can be summed up by the following issues: What are the lending practices of Nepalese commercial bank? A new research study was required to examine the determinants of lending operations among commercial banks in Nepal.

II. Review of Literature

A survey of the literature has been conducted to provide an overview of bank lending practices followed by an analysis of its factors that either directly or indirectly influences this behavior.

Abdul Adzis et al. (2018) examined the factors that affect commercial bank lending found that liquidity negatively affects bank lending activities while bank size and volume of deposit positively affect it.

Adedoyin and Sobodun (1991) lending is the heart of banking sector. Banks must pay interest on deposits, thus they should undoubtedly make good earnings by lending them to different sectors of the economy. In this way, banks need to develop and implement policies that are highly practical in order to lend with the goals of generating appropriate, sustainable profit, maintaining liquidity and assuring safety. Providing credit is the main duty of commercials banks. Loan and advances generate the greatest portions of the total assets of banks. It is the main source for generating income.

Alkhazaleh (2017) investigated the factors that may drive the Jordan commercials bank lending and he found a negative effect of credit risk and liquidity on bank lending and the effect of return on assets, bank size, inflation, money supply and growth in the gross domestic product were found to be positive.

Bajracharya (2018) examined that bank size, volume of deposit, cash reserve ratio are the major determinants of loan and advance of Nepalese commercial banks. The study concluded that bank size and deposit of the banks had significant positive impact on Loan and advance of commercial banks in Nepal, whereas, cash reserve ratio had negative impact. Similar to this, a negative correlation between inflation rate and lending volume of the banks shows that higher inflation rates leads to decrease lending of the banks.

Bhattarai (2016) investigated how credit risk affected the performance of selected 14 commercial banks of Nepal between 2010 and 2015. He employed a regression model in addition to a descriptive and causal comparative research design. According to his research, factors including banks size, credit risk indicators and cost per loan assets have a direct positive impact on the performance of banks. The same study, however, could not discover any relationship between bank's performance with the capital adequacy ratio and cash reserve. In contrast, the non- performing loan ratio appeared to have negatively impacted the performance of the banks.

Bhattarai (2020) found that bank size, cash reserve ratio and investment portfolio have positive and significant effects on loan and advances. On the other hand, the liquidity has negative and statistically significant with loan and advance. The macroeconomic variables gross domestic products growth rate and inflation rate have not been very useful in determining the loan and advances. The result shows that liquidity, cash reserve ratio, investment portfolio and bank size were major determinants of Loan and advance.

Berrospide and Edge (2010) and Carlson, et al. (2013) found a positive effect of bank capital on bank lending. The result shows that there is positive association between bank capital and lending.

Boyd, Levine and Smith (2001) suggested that higher inflation indicates lower long-term financial activity. In economies with high inflation, intermediaries will lend less and allocate capital less effectively. Higher long-term inflation indicates lower long-term levels of real activity and/or slower long-term growth rates. According to the findings, inflation and both the growth of the banking sector are negatively correlated and economically in significant way.

Ebire and Ogunyinko (2018) have demonstrated that real GDP and lending rate have a negative association with bank loans, although inflation has a positive association with banks loans in Nigeria. On the other hand, Maussa and Chedia (2016) examined the impact of internal and external factors banks credit in Tunisia. The study concluded that only inflation among external factors has a significant impact on loans, while internal factors such as return on asset, net interest margin and liquidity have a significant impact on the volume of bank loans.

Ezirim (2005) added that bank lending decisions are often loaded with a great deal of risks, which demands for a great deal of caution and tact in this element of banking operations. The credit function poses the biggest risk to the banking industry as there is high possibility of default. The risk of regulations is another factor. When banks work with public funds, regulators and supervisors are keeping a eye on their credit performance. As a result, they should be very clever, alert and moral in performing lending behavior.

Getachew (2017) also discovered that the size of the bank, the volume deposit, and GDP growth had a favorable impact on Ethiopian commercial bank’s lending decisions, but the cash reserve requirement and liquidity ratio had a negative impact. However, authors in their study failed to include the impacts of profitability, inflation, and bank concentration on Ethiopian commercial banks’ lending and there is still difference between studies in the determination of which factors have a significant impact and on the direction of impact, which prompted the researcher for further study and in -depth investigation in the area.

John (1998) stated that the ability of commercial banks to promote growth and development depends on the extent to which financial transactions are carried out with trust and confidence and with the least amount of risk. In other words, a bank must conduct banking operations in a secure manner. They might lose the public's faith, confidence and trust if they are engage in insecure and unsound banking practices. Under this scenario, the long-term viability of banks' and overall financial stability are at danger.

Karim et al. (2011) who examined the effect of interest rates on the bank lending in Malaysia and suggested that interest rates have a negative influence on bank lending even when macroeconomic variables such as GDP and inflation are taken into account.

Malede (2014) used panel data from eight banks for the period between 2000 and 2011 to investigate the factors that influence commercial bank lending in the Ethiopian banking sector. The study of the finding show a strong correlation between bank lending and banks size, credit risk, gross domestic product and liquidity ratios. On the other hand, the study found that deposits, investments, cash reserve ratios and interest rates had no significant effect on Ethiopian bank lending activities.

Obamuyi (2013), commercial lending behavior and the likelihood of long-term were influenced by banks size determined by its total assets and capitalization. According to the author's large banks offer a wide range of financial services to their customer since they can arise more money.

Olaoluwa and Shamode (2017) investigated the effects of monetary policies on bank lending behavior. They revealed that exchange rate, lending rate, the volume of deposits and reserve requirement have significant impact on bank lending behavior.

Olokoyo (2011) investigated the factors that influenced commercial bank's lending decision in Nigeria from 1980 to 2005. Fixed effects regression model is used in this study. From the study result, there is a long-term correlation between bank lending, deposits, interest rate, minimum cash reserve requirements, investment portfolios, liquidity ratio, foreign exchange and gross domestic product. Specially, lending rates were found to influence bank lending performance.

Oluitan, R. (2012) found that real output drives financial development, but not vice versa. Increase in gross domestic product leads to an increase in agriculture, industrial, hydro –electricity, infrastructure and several other economic activities, on the other hand, require more bank credit. On the other side, increase in national income leads to increase in deposits. As e result, economic growth has a beneficial effect on bank credit.

Pham (2015) investigated the factors that affect bank credit and discovered that domestic liquidity and high interest rates increase bank credit while negatively affecting the supply of credit are the exchange rate, capital requirement ratio, non-performing loans, and bank concentration.

Sarath and Pham (2015) revealed that greater liquidity held by the bank negatively affects bank lending

Temesgen (2016) found that the bank's lending behavior was influenced by the liquidity ratio, the volume of deposit, credit risk, bank capital, lending rate and annual foreign exchange rate.

Timsina, N. (2014) revealed that Gross Domestic Product and Liquidity ratio of bank have the biggest impacts on their lending behavior. Ganger Causality Test demonstrates a one –way causal relationship between GDP and private sector credit. The study indicates that GDP is the gauge of the economy, and when commercial banks make lending decisions they should pay attention to the overall macro-economic in general, factors that have an impact on the GDP in particular and their liquidity ratio in particular.

Timsina, N. (2014) found that the evidence of unidirectional pivotal relationship from GDP to private sector. Another factor affecting bank's private sector credit lending is inflation. The literature expresses a variety of opinions on how inflation affects actual private sector credit. While, some authors support a negative impact of inflations on bank credit where as some argue in favor of positive impact of inflation. Inflation causes a rise in nominal interest rates and bank credit rationing, which lowers investment.

Timsina (2016) also discovered that gross domestic product and the bank's liquidity ratio have an effect on bank lending behavior in Nepal. But all of them didn't show the direction of impact of bank's lending behavior.

Uyagu and Osuagwu (2015) found a negative relationship between inflation and commercial bank lending in Nigeria.

III. Research Methodology

Research Design, Population and Collection

In this study, the researchers used descriptive and causal comparative research design. From the total population of 26 commercial banks in Nepal, 14 commercial banks that have 10 years of period ranging from 2011/12 to 2020/21 are considered as a sample purposively. The banks have been chosen as simple random sampling technique. The main sources of data are banking and financial statistics report of Nepal Rastra Bank and annual reports of concerned banks. In addition to these different published articles, report, book, journal, and graduate research project are also analyzed. The data were collected on Loan and advances, bank size, liquidity, capital adequacy ratio, total deposit, lending rate, gross domestic product and inflation.

Data Analysis Technique and Procedure

The data was analyzed using descriptive and inferential analysis. The panel methodology was aided by Microsoft Excel 2013 and E-views software. Descriptive statistics include mean, minimum, maximum and standard deviations and multiple regression. In this regard, the study employed the Fixed Effect Model to identify the determinants that significantly affect commercial bank's lending behavior. The study used empirical model represented by the regression formula below:

$LNLA = \alpha + \beta_1 LNSize + \beta_2 LIQ + \beta_3 CA + \beta 4 LNTD + \beta_5 LR + \beta_6 Inf + \beta_7 \, GDP + \varepsilon$

Where,

LNLA= Natural logarithm of the total loan and advances

LNSize = Bank size (Natural Logarithm of the Total Asset)

LQ = Liquidity ratio

CA= Capital Adequacy Ratio

LNTD= Natural Logarithm of the total deposit

LR= Lending rate

Inf =Inflation rate

GDP =Gross Domestic Product

α= constant term

$\acute{\varepsilon}$= error term of the stochastic model

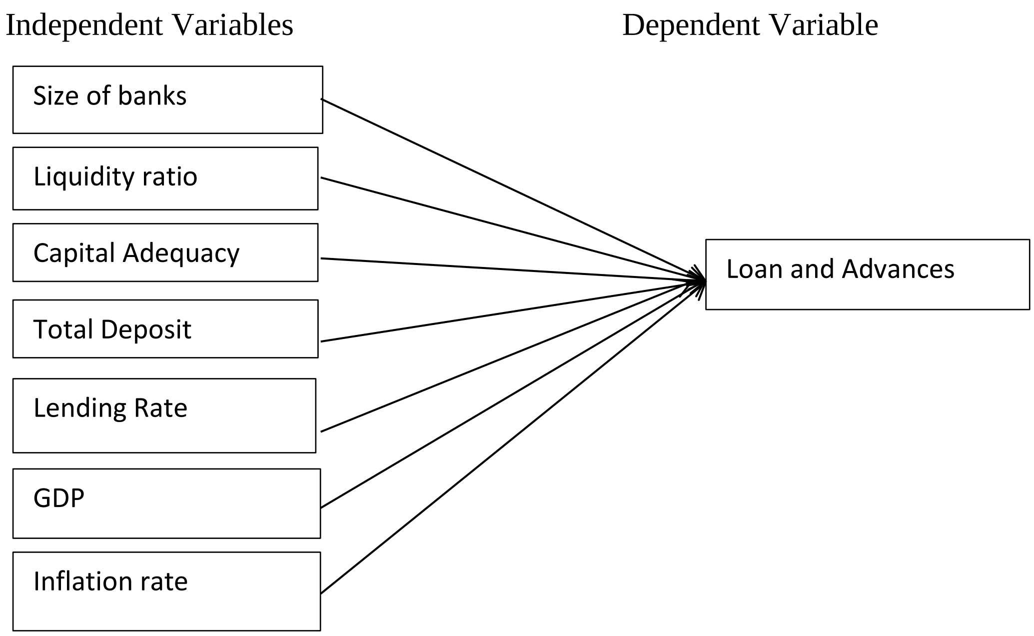
β= beta are the coefficient for each explanatory variables in model

Research Framework

Following research framework has been used in the study:

Figure 1

Research Framework



Note: Author's Research Framework

IV. Results and Discussion

Descriptive Statistics

Descriptive Statistics of the variables used in the study of commercial banks in Nepal from 2011/12 to 2020/21 has been presented in Table 1. The statistics includes values of mean, minimum, maximum and standard deviation values.

Table 1

Descriptive statistics of variables

Variables	LNLA	LNSize	LIQ	CAR	LNTD	LR	GDP	Inf
Mean	11.02588	11.45397	30.05571	13.09779	11.28372	10.44583	4.613000	6.742000
Median	11.06099	11.51852	29.26000	12.76500	11.36203	10.54307	4.460000	6.675000
Maximum	12.48688	12.75462	43.55000	17.41000	12.61238	14.47864	8.980000	9.930000
Minimum	9.173676	9.825247	20.10000	10.00000	9.721765	7.145509	0.000000	3.600000
Std.Dev	0.677017	0.650452	5.705876	1.804419	0.617023	1.874490	2.743686	2.352481
Observation	140	140	140	140	140	140	140	140

Note: Output from collected data analysis from E-views 12 SV

According to Table1.The average natural log of loan and advances is the dependent variable which is fluctuated between minimum 9.173676% to maximum 12.48688% with average loan and advances of 11.02588% with a standard deviation by 0.677017 respectively. The average natural log of size is 11.45397% which fluctuates between minimum 9.825247% to maximum 12.75462% with the standard deviation by 0.650452%. The average of liquidity is 30.05571%. It fluctuates between minimum 20.1% to maximum 43.55% with a standard deviation by 5.705876. The average capital adequacy ratio is 13.09779%. It fluctuates between minimum 10% to maximum 17.41% with a standard deviation by 1.804419. The average natural log of total deposit fluctuated between minimum 9.721765% to maximum 12.61238 %with average total deposit of 10.44583% with a standard deviation by 0.617023. The average of Lending rate is 10.44583 which fluctuate between minimum 7.145509% to maximum14.47864% with the standard deviation by 1.874490. Likewise, the average value of gross domestic product, 4.613% which fluctuate between minimum 0 to maximum 8.98% with the standard deviation of 2.743686. Similarly, the average value of Inflation rate is 6.742%, which fluctuates between minimum 3.6% to maximum 9.93% with a standard deviation by 2.352481 respectively.

Bresuch-Pagan Lagrange Multiplier Test

At first regression is run to use the Bresuch- Pagan test for making the decision. According to the value of the data which method is applicable regression analysis is used to predict and estimate the effect of the independent variables on the dependent variable.

Table 2

Bresuch-Pagan Test

	Cross-section	Time	Both
Breusch-Pagan	34.57059	7.276699	41.84729
	(0.0000)	(0.0070)	(0.0000)

Note: Output from collected data analysis from E-views 12 SV

Here, the p-value is 0.0000<0.05 so, OLS Model is rejected.

Hausman Test

After Bresuch – pagan test i.e reject OLS model. Hausman test is conducted to determine which method is appropriate while selecting between fixed effect model or random effect model.

Table 3

Hausman Test

Correlated Random Effects –Hausman Test Test cross –section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq.df.	Prob
Cross-section random	27.160509	7	0.0003

Note: Output from collected data analysis from E-views 12 SV

Hausman test is used to determine which method is appropriate while selecting between fixed effect model and a random effect model. P-value of Hausman Test is 0.0003. Hence, fixed effect model is appropriate for this study.

Regression Result and Discussion

Table 4

Fixed Effect Model of Dependent and Independent variables

Variables	Coefficient	Std.Error	t-statistic	Prob
LNSize	0.820067	0.089894	9.122635	0.0000
LIQ	-0.006526	0.002074	-3.146921	0.0021
CAR	0.001974	0.005330	0.370427	0.0017
LNTD	0.153770	0.091263	1.684912	0.0046
LR	-0.011500	0.003890	-2.956567	0.0038
GDP	-0.004350	0.003968	-1.096105	0.2752
Inf	-0.020669	0.007244	-2.853397	0.0051
C	0.763000	0.068902	11.07369	0.0000
R- squared	0.988195			
Adjusted –squared	0.986211			
Prob(F-Statistic)	0.000000			
Durbin-Watson Stat	1.55558			

Note: Output form collected data analysis from E-view 12 SV

AS, illustrated in the fixed effect model in the Table 5 For Loan and Advances, among lending behavior factors: size, Liquidity, capital adequacy ratio, Total deposit, Lending rate and Inflation is found to have statistically significant effect on Loan and advances, where the gross domestic product found to be statistically insignificant effect on Loan and advances. Bank Size has significant and positive effect on loan and advances (0.82), which indicated that a percentage change in bank size is associated with a 0.82 % increase in Loan and advances at a 1% level of significance. The study result is consistent with the finding of Adzis et al. (2018), Alkhazaleh (2017), Bajracharya (2018), Bhattarai (2020) and Malede (2014) who found a positive relationship between size and loan and advances. Based on the result it can be conclude that the lager the size, the more commercial bank's ability to hold loanable funds to lend to their customers.

Liquidity ratio has significant and negative effect on loan and advance (-0.0065), indicates that a percentage change in liquidity ratio is associated with a 0.007% decreased in loan and advances at a 1% significance level. The finding of Bhattarai (2020), Sarath and Pham (2015), Adzis et al. (2018) and Malede (2014), who found a negative effect and significant factors on loan and advances are consistent with the outcome. However, the result is inconsistent with the finding of Pham (2015) and Timisina (2016). As a result, it can be concluded that the high liquidity maintained by the bank will reduce the ability of the bank to extend a loan to the general public.

Capital adequacy ratio has significant and positive effect on loan and advances (0.00197), which indicated that a percentage change in capital adequacy ratio is associated with a 0.002% increase in loan and advances at a 1% significance level. The result is consistent with the findings of Berrospide and Edge (2010) found positive effect on loan and advances. However the result is against the finding of Temesgen (2016) and Bhattarai (2016) found a negative effect of bank capital adequacy on loan and advances.

Total deposit has significant and positive effect on loan and advances (0.15377), which shows that a percentage change in deposit leads to a 0.154% increase in loan and advances at 1% significance level. The result is consistent with the finding of Abdul Adzis et.al. (2018) and Malede (2014) found positive effect on loan and advances but against the finding of Alkhazaleh (2017) found that the deposit has negative effect on the level of bank lending. Generally, it can be conclude that the ability of commercial banks to obtain more deposits from their customers increases the ability of commercial banks to offers low-interest loans.

Lending rate has significant and negative effect on loan and advances (-0.0115), which indicated that a percentage change in lending rate is associated with a 0.012% decrease in loan and advances at 1% level significance. The result is consistent with the finding of Temesgen (2016), Ebire and Ogunyinka (2018), Olaoluwa and Shomade (2017) and Karim et.al (2011) have a significant and negative effect on loan and advances but against with the finding of Malede (2014). Hence, it can be concluded that a high interest rate has a negative impact on the consumer demands for credit. Since, it causes banks to lend less because it raises consumer's financial cost.

Furthermore, Gross domestic product as measure of total economic activity within the economy has negative and statistically insignificant effect on loan and advances (-0.00435), which indicated that a percentage change in GDP growth is associated with a 0.005% decrease in loan and advances at 1% significance level. The result is consistent with the finding of Ebire and Ogunyinka (2018) found that the gross domestic product has negative effect on loan and advances. The result is inconsistent with the finding of Timsina, N. (2014), Malede (2014) and Alkhazaleh (2017), who claimed that an increase in the gross domestic product, it will lead to the increment of bank lending.

Inflation rate has significant and negative effect on loan and advances (-0.02), which indicated that a percentage change in inflation is associated with a 2% decrease in loan and advances at 1% level significance. The result is consistent with the finding of Uyagu and Osuagwu (2015) found negative relationship between inflation and loan and advances but the result is inconsistent with Alkhazaleh (2017). The study result suggested that higher inflation reduces customer's demand for the credit.

It shows that the value of R^2 is 0.9881, which implies that the current study can explain 98.81% of the variation in the dependent variable can be explained by explanatory variables and the remaining 1.19 percent of variations of the loan and advances under investigation can be explained by other factors not included in the model. Furthermore, regarding the statistical significance of the model its p-value is less than 1% level indicating that the estimated model has a high statistical significance, which increase the model reliability and validity .As well as the value of Durbin Watson is 1.55 for this study. According to Durbin Watson stat value near to 2 indicates there is no presence of auto-correlation.

V. Conclusion and Recommendation

The study used panel data from 2011/12 to 2020/21 to examine the determinants of lending behavior of commercial banks in Nepal. The result shows that bank size, liquidity, capital adequacy ratio, total deposit, lending rate, inflation shows significant impact on loan and advances. The macroeconomic variables gross domestic product growth rate has no significant impact on loan and advances. Further, it can be drawn from the study that bank size, capital adequacy ratio and total deposit were major components. So, commercial bank should focus on raising more money by offering wide range of financial services to their customers to attract more deposits to support their lending activities. The macroeconomic situation is favorable or supportive, banking performance is improved and good lending behavior guaranteed. If there is unstable situation in macroeconomic, the bank's performances suffer.

Based on the finding, the study provided the following operational and policy recommendations to enhance commercial banking lending. Commercial bank's should improve their strategies to attract and retain more deposits from the public in order to raise more money to support their lending activities through raising awareness, delivering better customer service, establishing more branches and utilizing innovative banking technology. Since the higher the capabilities of banks to attract more deposit, the higher will be the ability for the banks to grant loan and advances to the public. If the central bank implements regulations, in order to manage the economy as whole and maintain the financial sectors soundness and stability, there should be closer coordination and cooperation between banks and regulatory authorities at the stage of policy formulation to take into account the impact of the regulation on bank lending as the sector-specific regulations.

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