

Risk Management and Value of Listed Commercial Banks in Nigeria

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Abstract

This study was carried out to examine the relationship between risk management and value of listed commercial banks in Nigeria. The study, anchored on the risk management theory, adopted the ex post facto research design. The population consists of all listed commercial banks in Nigeria. Data for the study were collected from secondary sources through content analysis of corporate financial statements of the sampled commercial banks for the period 2017 to 2022. The data collected were analysed using the descriptive and inferential statistics while the hypotheses formulated for the study were tested using the panel regression analytical method. Findings of the study showed that operational risks and liquidity risks management have a significant positive relationship with market value of listed commercial banks in Nigeria. The study also found that market value has a negative and significant relationship with credit risks. The study therefore concludes that risk management practices influence the market value of listed commercial banks in Nigeria and recommends amongst others that automated credit tracking mechanism should be put in place by the management of commercial banks so as to reduce the possibility of default and outstanding loans beyond the substandard loan level of between 90 to 180 days.

Keywords: Risk Management, Operational Risk, Credit Risk, Liquidity, Firm Value

I. INTRODUCTION

In today's complex business environment, the need for planning, organizing, controlling and coordinating the resources of a corporate entity to reduce the impact of risks on corporate performance has become imperative. Risk is a situation where the future outcome of an event or project is not known or what it will be but the probabilities of alternative outcome can be estimated through careful study of past results in similar field. It can also be refers to as degree of uncertainty and/or potential financial loss inherent in an investment decision. Corporate organizations are exposed to several risks such as business, operating, credit, interest rate, liquidity, strategic,

political, legal, financial, and regulatory risks. Risk could benefit an organisation if properly managed and it can also destroy an organisation if not meticulously managed. Shatnawi *et al.* (2020) argue that risk management policy not well implemented would have an adverse effect on the financial performance of financial institutions such as loss of reputation or goodwill, reduction in profit, inability to meet its goal and objectives and could also lead to firm's liquidation. Enterprise Risk Management Policy is an essential component in the development maintenance of guide line. It helps firm establishes formal, systematic and integrated, principles-based approach to identifying, managing and monitoring risks. Udoka and Orok (2017), contend that financial performance and by extension firm value also depends on the risk taken but managed to a minimal level. Firm value (FV) is the price to book value as a measure of management's success in past operations and prospects in the future. It is also expressed or measure as market price of a company shares scaled by book value of total asset.

Performance of banks sometimes fall below expectations as a result of risks in the operating environment which attribute such set back or decline in the value of the financial assets of the banks. While these issues are not completely ruled out as factors inhibiting growth of asset values in Banks, certain other relevant factors that seem crucial are not fully explored in the literature. One of such factors is inadequate management of various risks which commercial banks faced. Ineffective risk mismanagement can lead to huge bad debt in banks such as non-performing loans, granting of farther credit facilities to other customers. Also, inability to implement Enterprise Risk Management may lead Commercial Banks to loss of reputation, financial loss, reduction in profit, inability to meet firm's goals and objectives, inefficient use of resources, loss of brand, downsize and bankrupt, limit credit facilities, inability to satisfy it's maturing financial obligation, accounting and reporting deficiencies may occur, expected sustainable growth in the long run could be dashed, reduction in capital reserves to meet customer's demand in event of winding up and fluctuation in interest rate which discourages potential borrowers. This invariably could lead to decline in value of assets. Therefore, the study provides additional insight on the possibility of improving value of assets through reducing loss associated with risk mismanagement.

The main objective of the study is to examine the relationship between risk management and value of commercial banks in Nigeria. The specific objectives are to:

- (i) investigate the relationship between operational risk and market value of commercial banks in Nigeria,
- (ii) ascertain the relationship between credit risk and market value of commercial banks in Nigeria; and
- (iii) examine the relationship between liquidity risk and market value of commercial banks in Nigeria.

Based on the above research objectives, the following hypotheses which are formulated in the null form are subjected to empirical test.

H₀₁: There is no significant relationship between operational risk management and market value of CBs in Nigeria.

H₀₂: There is no significant relationship between credit risk management and market value of CBs in Nigeria.

H₀₃: There is no significant relationship between liquidity risk management and market value of CBs in Nigeria.

II. LITERATURE REVIEW

Concept of Risk in Banking

Risk is the potential for financial loss resulting from discrepancies between expected and actual results of investment activity. The possibility of gaining or losing something significant is known as risk. It refers to the implications of taking action in the face of potential or imminent harm brought on by external or internal flaws that may be averted by taking preventative measures. Risks, according to Sobel and Reding (2004), are unforeseen or unanticipated events that could put a person at risk. Risks are uncertainties that can affect a company's ability to attain its objectives and can lead to many interdependent result.

Udoka and Orok (2017) contend that risk management is an important function for organizations that deal with money, including banks and other financial organisations. Since the early 2000s, much has been done to encourage companies, especially those operating in the financial industry to adopt ERM. For example, the Committee of Sponsoring Organization of the Treadway Commission (COSO) in 2004 released the Enterprise Risk Management Integrated Framework, which defines ERM as a process, affected by an entity's board of directors, management and other personnel, applied in strategy-setting and across the enterprise, designed to identify potential events which may affect the organization, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives (COSO, 2004).

Concept of Firm Value

Firm value is a benchmark for a company's value that measures shareholder wealth. Shareholder wealth is the value that shareholders have in the company and it can also be referred to as shareholders' equity. The wealth of shareholders increases as the company's value rises and it is calculated as the difference between assets and liabilities (Akporien et al., 2022; Otuya & Osiegbu, 2021; Wolfe & Sauaia, 2003). Firm value is the economic measure of an organisational performance indicating the equivalent value of the company, according to Li, *et al.* (2014). It is clear from this contribution that the concepts of value and performance are interconnected. The crucial point to remember is that value concentrates on the capital structure of the organisation and can be applied to compare businesses with various capital structures.

The idea of a bank's value, like the concept of a firm's value, can be viewed from various angles. These consist of enterprise value, book value, replacement value, liquidation value, going concern value, and market value. Present and future values are often useful indicators of a firm's value. Present value is the most accurate and real definition of value (Pandey, 2014). The value of firm is very important because higher firm's value implies higher prosperity of shareholders, higher the stock price higher the firm value. The desire of shareholders is increasing firm value because the increasing of firm value shows higher shareholders' prosperity. The wealth of shareholders and company is presented by stock price as a reflection of investment decision, finance, and assets

management. In the future, the objective of the company is maximizing the firm value (Otuya et al., 2023).

This study adopts the market price book value ratio as the best measurement to ascertain the value of the firm. Price to book value ratio is a ratio that shows the relationship between the market price of a company's stock and the book value of the company.

Theoretical Framework: The Risk Management Theory

The foundation for this study is the risk management theory developed by David (1999). The theory that managers may manipulate the bank financial asset position because they are more concerned with overall risk and less concerned with specific risk posed by portfolio components. The necessity for total risk demonstrates that risk cannot be concentrated since, contrary to Markowitz theory, portfolio risk is not simply the sum of its individual components. This implies that portfolio revenue, which is unaffected by changes in portfolio composition, must be used to calculate portfolio risk. Risk measurement is expensive, therefore bank managers balance accuracy and cost.

Empirical Review

Operational Risk and Value of Commercial Banks

Studies on operational risk management and how it affects the value of the firm have also come up with conflicting results. While some studies indicate the presence of positive influence, others show a negative effect. Chukwunulu *et al.* (2019) examined how risk management affected bank financial performance in Nigeria. The research data were analysed using the least squares method and a longitudinal design was used in the study. Return on equity was shown to be considerably (and negatively) influenced by credit risk, although there was little evidence of a negative link with return on assets. Furthermore, operational risk and liquidity management have no discernible impact on bank performance, whereas capital sufficiency had a large positive correlation with ROE and a negligible correlation with return on assets.

Gupta and Mahakud (2020) investigate the impact of macroeconomic condition on investment cash flow sensitivity (ICFS) of Indian firms and examine whether the effect of macroeconomic condition on ICFS depends on the size and group affiliation of the firm. Total number of 1922 firms were used between the period of 1999-2016, the study analysed the data with use of dynamic panel data model. The postulate that the availability of cash flow influences the investment decisions and also good economic condition reduces the ICFS, although this effect is stronger for small -size and standalone firms than the large-sized and business group affiliated firms. Anetoh *et al.* (2021) examined the impact of operational and credit risks on the firm value of listed deposit banks in Nigeria. An *ex-post facto* research design was used in the study. All of the deposit money banks registered on the Nigeria Stock Exchange were the study's target population. The Central Bank of Nigeria, annual reports, and financial statement of accounts of deposit money banks under evaluation from 2010 to 2019 were all employed as secondary sources of data for the study. The specified hypotheses were tested using structural equation modelling at a 5% level of significance. The results demonstrated that credit risk had a large, yet adverse, impact on the firm value of Nigerian deposit money banks. Operational risk significantly and favourably impacted the firm value of Nigeria's deposit money banks. According to the study, banks should make sure that their credit risks are sufficiently secured by carefully examining loan procedures to identify feasible

projects and prevent loan defaults from bank clients. In order to decrease unethical banking activities, they should keep hiring qualified and skilled staff who are specialists in both ICT competency and banking professionalism.

Credit Risk Management and Value of Commercial Banks

Banks credit management practice was found to be wanting and thus triggered the banking distress in Nigeria. Ikpe and Enang (2022) assessed the impact of credit risk on the performance of banks with international authorisation in Nigeria. The study covered 10 banks and adopted panel data research design for the period spanning 2006 and 2018. Non-performing Loans (NPLs), Loans Loss Provision (LLP) and Loans and Advances of the banks were regressed against Return on Asset (ROA) and Return on Equity (ROE) of the banks. Both Foreign Exchange Management (FEM) and Risk Enterprise Management (REM) were used in discussing the results of the analysis. For hypothesis one, none of the explanatory variables showed significant relationship with ROA in both FEM and REM. In hypothesis two, LLP and LAA showed significant relationship with ROE in FEM while NPL and LLP showed significant relationship with ROE in REM. NPL showed a positive relationship with ROE in both FEM and REM. It was recommended that regulators should be watchful and check banks' excesses which tend to create a positive relationship between NPLs and ROE. Credit risk is a serious threat to the performance of banks and as a result various researchers have examined the impact of credit risk on banks in varying dimensions.

Oyedele *et al.* (2018) examined "CRM and its effect on the Financial Performance (FP) of banks" with focus on selected banks in Nigeria. They used purposive sampling to select five Nigerian banks and extracted secondary data from the financial statements of the banks to compute the relevant financial ratios (ROA and ROE), loans to deposit ratio (LTDR), and capital adequacy risk (CAR) served as the study's main variables. Regression analysis was performed on the data. LTDR was found to be significantly related to ROA. CAR and LTDR were also found to be significantly positively related to ROE but NLPR was found to have a negative and significant influence on ROE. They thus concluded that the banks' CRM had a significant influence on their FP.

Ironkwe and Osaat (2019) investigated "risk asset management and FP of insurance companies in Nigeria." Secondary data on the relevant variables were obtained from the database of the Central Bank of Nigeria. ROA, ROE and leverage risk were then computed and used to estimate the long and short-run relationship as well as causal effects. Data were analysed using multiple regression. Unit root test was performed to test for stationarity. Leverage risk was found to be significantly related to return on equity. The results were found not to be consistent with a priori expectations.

Liquidity Risk Management and Value of Commercial Banks

The handling of liquidity risk has generated discussion among academics. There are conflicting findings regarding the connection between liquidity risk management and corporate value. In order to determine the impact of credit and liquidity risk management on the financial performance of commercial banks (CBs) in Nigeria.

Okere *et al.* (2018) looked at liquidity risk management and the financial performance of deposit money banks in Nigeria. The study used panel data from a longitudinal survey and used the Hausman test and other econometric tools to analyse the data. The financial success of CBs was found to be strongly correlated with liquidity risk management.

Waitherero *et al.* (2021) In a different study looked at how the value of Kenyan SACCOs interacted with liquidity risk. This study used both descriptive and causal research designs and adhered to the positivist research philosophy. The 164 SACCOs in Kenya with licences were the focus of the investigation. A stratified random sampling technique was used to choose a sample of 115 respondents. The study made use of secondary data derived from publicly available financial accounts of the organisation. Both descriptive statistics and inferential analysis were used to analyse the data. The study's findings showed that the firm's worth was significantly and favourably impacted by liquidity risk, which was positively connected with the firm's value.

Al-Homaidi *et al.* (2019), in their study on the liquidity of Indian banks, they used data on commercial banks listed on the Bombay Stock Exchange and a number of statistical models, including pooled OLS, fixed effects regression analysis, and random effects regression analysis, to investigate the liquidity determinants of Indian banks from 2008 to 2017. Bank size, capital adequacy ratio, deposit ratio, operation efficiency ratio, asset quality ratio, asset management ratio, return on equity ratio, net interest margin, and return on assets were considered the independent variables. Bank liquidity was considered as the dependent variable measured by liquid assets to total assets. Additionally, numerous macroeconomic elements including interest rates and exchange rates were included in the models. According to the study, while liquidity was positively impacted by bank size, capital adequacy ratio, deposit ratio, and operational efficiency ratio, it was negatively impacted by asset quality ratio, asset management ratio, return on equity ratio, and net interest margin.

Eyon (2019) investigated how liquidity risk affected the financial results of Ethiopian commercial banks. Data from 9 (nine) commercial banks' financial statements and accounts for the sampled period from 2007 to 2016, fixed effect panel regression was used. Measures of liquidity include the loan-to-deposit ratio, liquidity ratio, cash reserve ratio, share of non-performing loans from the total amount of bank loans, CPI, and GDP growth. Eight variables that influence the financial performance of commercial banks in Ethiopia were chosen and examined. The results demonstrated that the financial performance of Ethiopian commercial banks was negatively and statistically significantly impacted by the liquidity coverage ratio, net stable funding ratio, loan to deposit ratio, and liquidity ratio. For the examined period, the cash reserve ratio, the percentage of nonperforming loans compared to total bank loans, the CPI, and the GDP growth rate all had negative and negligible effects on the financial performance of Ethiopian commercial banks. Commercial banks in Ethiopia suffer from poor financial performance due to liquidity risk.

III. METHODOLOGY

Design and Data

The *ex post facto* design is considered suitable for this study because it is a substitute for true experimental research and can be used to test hypotheses about cause-and-effect or correlational relationships. The population of the study consists of all the 15 listed commercial banks (CBs) on the floor of the Nigerian Stock Exchange Group plc as at 31st December, 2022. Census sampling was used since the entire population is considered for the study. Data for the study were

collected from secondary sources through content analysis of corporate financial statements of the sampled commercial banks for the period 2017 to 2022.

Empirical Specification of Model

Functional relationships based on simple and multiple regression were created in general form to evaluate the assumptions as follows:

$$Y = f(x) \quad (1)$$

Where, y is the performance measured in the CBs, x is the risk elements in the CBs. In a function form it is stated as:

$$VCBs = f(OPRM)$$

$$VCBs = f(CRRM)$$

$$VCBs = f(LQRM)$$

Substituting performance/value, bank risks variables in a regression statistics, equation, the following model are developed thus:

$$VCBs_{it} = \beta_0 + \beta_1 (OPM)_{it} + e_{it} \quad \text{equation 1}$$

$$VCBs_{it} = X_0 + X_1 (CRM)_{it} + e_{it} \quad \text{equation 2}$$

$$VCBs_{it} = W_0 + W_1 (LRM)_{it} + e_{it} \quad \text{equation 3}$$

Where

VCB = Value Commercial Banks

$\beta_0, X_0, W_0, Z_0, U_0$ = Constant terms

B_1, X_1, W_1, Z_1, U_1 = Estimation coefficient of the independent variables

OPRM = Operational Risk Management

CRRM = Credit Risk Management

LQRM = Liquidity Risk Management.

VCBs = Value of Commercial Banks

e = Error term

i = Number of Deposit Money Banks

t = Number of years

Data Analytical Techniques

The panel regression technique is considered the most suitable for this kind of study for the fact that it contains time series and cross-sectional data set. To ensure robustness check, fixed effect and random effects model were analyzed. The Hausman test was further carried to determine which of the fixed or Random effect will be suitable for use in this study.

Operationalisation and measurement of Variables

Table 1: Operationalisation of Variables

SN	Variable	Acronym	Measurement	Source	APriori Expectation
1	Firm Value	VCB	Price to Book Value as a measure of management's success in past operations and prospects in the future. It is measured as market price of company shares scaled by book value of total assets.	Utami <i>et al.</i> , (2021);	
2	Operational Risk management	OPRM	Operating income divided by total asset.	Otuya and Osiegbu(2020)	+
3	Credit Risk Management	CRRM	It is measured as a ratio of non-performing loans to total loans	Ikpe and Enang(2022)	+
4	Liquidity Risk Management	LQRM	It is measured as total loans and advances divided by total customer's deposit.	Isedu and Erhabor (2021)	+

IV. PRESENTATION AND ANALYSIS OF RESULTS

The results are presented and analyzed thus:

Table 2: Descriptive Statistics of the Variables

	VCB	OPRM	CRRM	LQRM
Mean	59.44956	9.213111	0.063000	41.74100
Maximum	609.6200	136.8600	0.410000	515.1100
Minimum	0.010000	0.020000	0.000000	0.040000
Std. Dev.	86.28388	27.45889	0.073124	122.1472
Jarque-Bera	1504.205	639.5448	494.1940	296.3182
Probability	0.000000	0.000000	0.000000	0.000000
Observations	90	90	90	90

Where: VCB = Market Value, OPRM = Operational Risk; CRRM = Credit Risk; LQRM = Liquidity Risk;

The table 2 displays the descriptive statistics for the data. As observed, firm value has a mean value of 34.505 for the time examined. The maximum and minimum values for firm value for the six year period are 609.62 and 0.10 respectively. The standard deviation measuring the spread of distribution stood at 86.283 indicating no considerable variations in the data series. The positive Jarque-Bera statistics of 1504.205 and the probability value of 0.00000 indicates that the data series satisfies normality criterion and is suitable for further analysis. Similarly, operations risk

management (OPRM) has a mean value of 9.213 for the time period examined. The maximum and minimum amount of OPRM for the period was 136.86 and 0.020 respectively. The standard deviation measuring the spread of the distribution stood at 27.458 which is large compared to the mean value and indicates a considerable dispersion from the mean and that the distribution is inclusive of years with significant variations in their operations risk management structure. The Jarque-Bera- statistic stood at 639.54 and the p-value of 0.00000 further indicates that the data is normally distributed at 5% level of significance ($p < 0.05$).

Further, the descriptive statistics result from the table on credit risk management (CRRM) and liquidity risk management (LQRM) point to the fact that while the sampled banks had an average of about 0.063 for credit risks for the period under consideration (2017-2022); the value of liquidity risks within the same period under consideration stood at an average of about 41.741. The descriptive statistics also shows that during the period the maximum proportion for credit risks was 0.410 with the lowest being 0.000. The LQRM also recorded the maximum value of 515.11 and minimum value of 0.040 during the period. The standard deviation of 0.073 for the credit risk and 122.142 for liquidity risk management shows that there is a wider dispersion in terms of liquidity risk management but no significant dispersion for credit risk management among sampled banks. For the normality in distribution, the CRRM and LQRM recorded positive Jarque-Bera statistics of 494.19 and 296.31 respectively with a p-value of 0.0000 ($p < 0.05$) which indicates that the series satisfies the normality criterion and that selection bias is unlikely in the sample.

Table 3: Regression Results

Variable	PANEL OLS (RANDOM EFFECTS)		PANEL OLS (FIXED EFFECTS)	
	Coefficient	Prob.	Coefficient	Prob.
C				
OPRM	75.95882	0.0000	75.95882	0.0000
CRRM	1.522649	0.0116	1.522649	0.0116
LQRM	-174.4287	0.0011	-174.4287	0.0011
R²	0.100039	0.0200	0.100039	0.0730
ADJ R²	0.47681		0.47681	
F-Stat	0.38764		0.29678	
P(f-stat)	5.347242		2.648587	
Breusch-Pagan Godfrey	0.000083		0.003689	
	2123(0.546)			

Hausman test	$X^2=2.230$, df = 5, P=0.321
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Table 3 shows the result for the model which examines the relationship between risk management and performance of listed commercial banks. As part of our robustness assessment, data from the conventional estimation (fixed effects and random effects model) are generated and analysed. In addition, the Hausman specification tests conveyed in the lower part of Table 3 which gave a chi-square statistics value of $\chi^2= 2.230$, df = 5, $p=0.321$, ($p>0.05$), we reject the fixed effects model in favour of the random effects model for the firm value equation. These results imply that some variables may vary over time but are fixed across banks, and others may vary across banks, but be fixed over time.

Hypotheses Testing and Discussion of Findings

Hypothesis One

There is no significant relationship between operational risk management and market value of CBs in Nigeria

As observed, the regression estimates in (Table 3) reveal a positive coefficient and statistically significant at 5% level of significance. VCB and OPRM ($\beta_1OPRMit = 1.5226$, $p=0.0116<0.05$). The result implies that the higher the operational risk management, the higher the market value hence is a major determinant of the value of commercial banks. The result did not meet our *a priori* expectation. This result is consistent with prior studies in which operational risk management is found to positively impact on firm performance and market value (Oluwaseyi *et al.*, 2018; Anetoh *et al.*, 2021; Yeh and Hsiao-Yi, 2016)

Hypothesis Two

There is no significant relationship between credit risk management and market value of CBs in Nigeria.

The regression result in the random effect model in Table 3 reveals a negative coefficient between CRRM and VCB. ($\beta_2CRRMit = -174.42$, $p=0.0011$, $P<0.05$). By implication, banks with a substantial credit risks, experience reduced market value of shares. This result meets our *a priori* expectation because we envisaged that higher credit risks implies greater concern thus reducing corporate financial performance. This result is consistent with prior studies by (Akinselure & Akinola 2019; Bishnu, 2019; Chukwunulu *et al.*; 2019; Nwude & Okeke. 2018; Oyedele *et al.*, 2018). However, studies by (Otuya & Osiegbu, 2020; Ikpe & Enang, 2022)) found that credit risk has a positive and significant effect on firm value.

Hypothesis Three

There is no significant relationship between liquidity risk management and market value of CBs in Nigeria.

Hypothesis three revealed a positive coefficient. The positive coefficient suggests that both liquidity risk management and market value move in the same direction. ($\beta_3LQRMit = 0.1000$, $p=0.0020$, $p<0.05$). Therefore hypothesis of significant positive association is supported. This

result implies that a commercial bank with a larger percentage of liquidity risks is more likely to experience greater financial performance and by extension higher market value. The finding did not meet our *a priori* expectation. Previous studies such as Otekunrin *et al.* (2021), Okere *et al.* (2018), and Isedu and Erhabor (2021) however agree with this finding.

V. CONCLUSION AND RECOMMENDATIONS

The literature on risk management and the resulting effect on performance is indeed diverse and has been a subject of intense research in finance and management in recent times. However, a review of the literature brings up some research gaps in bank risk management as it relates to value of the firm. First, available empirical evidence regarding the relationship between different component of risk structure and market value provides an unclear picture with some studies showing different patterns of risk management structure as having a positive effect on performance while others provide divergent and conflicting results.

Against this backdrop, this study extends the existing literature on the relationship between risks management and firm value using listed commercial banks in Nigeria. To achieve the study's aim, correlational and *ex post facto* research design are adopted. The study's data were collected from content analysis of annual reports and financial statements of listed commercial banks in Nigeria.

The study, using results of the financial statement statistics and exploratory variables in a panel regression model showed that operational risks and liquidity risks management have a significant positive relationship with market value of listed commercial banks in Nigeria. The study also found that market value has a negative and significant relationship with credit risks. The study, therefore, concludes that risk management practices influence the market value of listed commercial banks in Nigeria.

In line with the findings of this study, the following recommendations are proffered:

First, operational risk management is found to have a positive link with market value of listed commercial banks in Nigeria. In view of this, it is recommended that banks should improve on their operational risk management by formulating and implementing strategies that will enhance optimum level of profitability.

Second, the study finding also showed that credit risk management improves on the performance and market value of commercial banks in Nigeria. In line with this, it is recommended that automated credit tracking mechanism should be put in place by the management of commercial banks so as to reduce the possibility of default and outstanding loans beyond the substandard loan level of between 90 to 180 days. By so doing the rate of doubtful loans will drastically reduce, such that provision for doubtful debts will be kept at a minimal level.

Third, it is also recommended that management of commercial banks should seek to improve their liquidity by increasing the proportion of customer deposits. In addition, the bank management should put adequate mechanism in place on loans and advances to customers to avoid loans and advances in the short term whose repayment may expose the firm to liquidity problems.

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