

## The Effect of Credit Risk Management on the Financial Stability of Banks in the United Kingdom

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**Abstract:** *Banks around the world are critical to nations economy development due to the significant roles of banks in providing credit to support growth of the economy. In carrying out this task, banks are faced with several risks of which credit risk is significant considering that disbursement of credit is the principal generating source of revenue for banks. Consequently, mitigating credit risk is essential to the continued existence of banks to ensure financial stability of a nation. The study evaluated the effect of credit risk management on financial stability of banks in the United Kingdom. The model used for the research proxied credit risk management as total risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR), non-performing loan ratio (NPLR) and loan cover ratio (LC). Financial stability was measured by liquidity coverage ratio (LCR), leverage ratio (LR), capital adequacy ratio (CAR) and return on assets before tax (ROABT) and the study collected data from top (5) banks in the United Kingdom. The secondary data required were extracted from the audited financial statements of selected UK banks from 2016 to 2021 and the data was analysed using regression technique through SPSS version 28. The research concluded that there exists significant positive effect between credit risk management and financial stability of sampled UK banks for the sampled period since the result of the regression analysis revealed that the probability of F-statistic value of 3.427 with p-value of 0.023 is below significance level of 5%. The study therefore recommends that credit risk management (CRM) proxied by total risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR), non-performing loans to gross loan ratio (NPLR) as a measure of asset quality and loan cover ratio (LC) have a joint significant effect on financial stability of UK banks.*

**Keywords:** Credit Risk Management, Financial Stability, UK banks, non-performing loan, Credit risk

### INTRODUCTION

#### Background to the Study

Commercial banking activities are usually impeded by various risks categories of which credit risk is deemed to be critical to the financial stability of banks (Broll et al., 2002). Credit risk also identified as default or counterparty risk is a risk representing failure of bank customers to paydown on their loan obligations in line with the executed loan agreements (Broll et al., 2002). The persistent increase in

credit risk will erode banks capital and cause crisis in the banking sector. Anderson and Mullineux (2009) argued that huge credit defaults from mortgage lending majorly accounted for the global financial crisis in 2007 to 2009. Consequently, effective credit risk management is vital to financial stability of banks which is important for nation economic growth (Oino, 2021). Previous research works dwell more on performance of banks, but this research will expand the scope by focussing on financial stability. The research introduced additional variables such as capital adequacy ratio (CAR), liquidity coverage ratio (LCR), and leverage ratio to measure the financial stability of banks in the United Kingdom.

The research evaluated the impact of non-performing loan to gross loan ratio (NPLR) as a measure of asset quality, loan cover ratio and total loans to total deposit on the financial stability of banks in the United Kingdom. Top five banks were selected and audited reports of the banks from 2016 to 2021 were used for the analysis.

### **Problem Statement**

The credit crisis arising from sub-prime mortgages started in United States and extended globally between 2007 to 2009 and UK financial sector was not excluded causing financial instability in the UK banks (Anderson and Mullineux, 2009). Lastra and Wood (2010) posited that the credit crunch exposed some high performing banks in the UK due to shortages in capital and liquidity caused by substantial leverage, poor risk management especially credit risk, deficiencies in regulatory oversight and inadequate banking guidelines. The root cause of the financial crisis was traced to unsound credit decisions, inadequate credit risk management and failure to consider the impact of credit risk on the financial stability of banks for business sustainability (Brown and Wang, 2002).

The empirical review of previous research revealed that two variables or less were used as proxy to ascertain the effect of credit risk management on banks performance. In-addition, previous studies dwell more on the performance of banks or access of SMEs to bank credit, but the new research will expand the scope by focusing on financial stability. The research introduced additional variables such as capital adequacy ratio (CAR), liquidity coverage ratio (LCR), and leverage ratio to measure the financial stability of UK banks. The gaps from the previous research were filled by this study by investigating the effect of Credit Risk Management on the Financial Stability of Banks in the United Kingdom.

### **Research Rationale**

The significance of banks for economic development cannot be overemphasised considering the credit creation, intermediation roles and their support to the real sector of the economy. Banking crisis in the previous years caused financial instability in the banking sector leading to the collapse of banks and businesses which caused setback for economic growth (Lastra and Wood, 2010). The crisis led to the collapse of Northern Rock, Halifax Bank of Scotland was purchased by Lloyds TSB, Bradford & Bingley was partly acquired by Santander banking group and serious government intervention to rescue the economy from collapsing (Casu and Gall, 2016). Previous studies have measured to some extent the effect of credit risk management on the banks performance or shift in credit creation toward households but the importance of credit risk management on the financial stability of banks was not extensively addressed. The research introduced additional variables such as capital adequacy ratio (CAR), liquidity coverage ratio (LCR), and leverage ratio to measure the financial stability of UK banks. This will help to establish the soundness and financial stability of UK banks as well as measure repayment strategies put in place by UK banks to recover loan disbursed to customers.

### **Research Aim and Objectives**

The study aims to evaluate the effect of credit risk management on financial stability of banks in the United Kingdom.

The following specific objectives support the research aim.

1. To investigate the impact of credit risk management on liquidity cover ratio of UK banks.
2. To evaluate the effect of credit risk management on the leverage ratio of UK banks.

3. To understand the relationship between credit risk management and capital adequacy ratio of UK banks.
4. To examine the relationship between credit risk management and return on assets before tax ratio.

## **Research Hypotheses**

### **The null hypotheses are stated as follow:**

- i. Credit risk management does not have significant effect on the leverage of UK banks.
- ii. There is no relationship between credit risk management and capital adequacy ratio of banks in United Kingdom
- iii. Credit risk management will not have significant impact on the liquidity cover ratio of UK banks.
- iv. There is no relationship between credit risk management return on assets before tax ratio of UK banks

## **Scope of the Study**

The impact of credit risk management on the financial stability of banks in the United Kingdom is the focus of the research. The impact of total risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR), non-performing loan to gross loan ratio (NPLR) as a measure of asset quality and loan cover ratio (LCR) on the financial stability of UK banks would be determined using the top five (5) banks in the UK from 2016 to 2021. The top five banking groups dominating UK banking sector controlling 50% of mortgage market, 77% of personal current account market and 85% of small business banking are Lloyds, HSBC, NatWest Group, Santander and Barclays (Molyneux, 2017).

## **Overview of Research Methodology**

The financial stability of banks is critical for the smooth-running of nation's financial system. Banks success is a reflection on how risks especially credit risk is managed, control and mitigated to prevent financial crisis that can lead to collapse of financial sector. To mitigating the financial instability in the economy, various theories have been identified and hypotheses have formulated in relation to the theories which will be tested. The study will obtain secondary data from archival research of quoted UK banks and use deductive approach to evaluate the effect of credit risk management on the financial stability of UK Banks. Positivism philosophy will guide the study. The research used non-probability sampling method to select the top (5) banks in the United Kingdom. The secondary data required were extracted from audited financial statements of selected banks from 2016 to 2021. Longitudinal or panel analysis will be used for the study since it allows observations to be performed overtime. Ethical concerns and limitations of the study would be considered in determining the results of the study.

## **LITERATURE REVIEW**

### **Conceptual Review**

#### **Financial Stability**

It was discovered from the review of literatures that no general agreement regarding the definition of financial stability. It is a broad concept but essentially, financial stability is widely known as being about effective financing of economic activities and adequate managing of risks to withstand or absorb economic shocks (Schinasi 2004; Fell and Schinasi, 2005; Madi, 2016; International Monetary Fund, 2022; Financial Services Report, 2022). Financial instability is therefore characterized as being

experiencing high insolvency risk, illiquidity, and greater credit risk (Trinh et al., 2020). Financial stability is very important to Central Banks for economic development and growth of nations economy. Bank of England intervened to restore confidence in the UK banking sector during global financial crisis in 2007-09 caused majorly by credit risk and taxpayers fund was used to bailed out some of the big financial institutions in the UK to ensure financial stability of the financial system (Financial Services Report, 2022). The Bank of England recent report confirmed the crucial role of UK banks in ensuring the financial stability of the UK economy as the global and UK economic outlook have weakened materially and suggested increased capital buffer as a proactive measure to absorb probable losses to support the economy in the occurrence of a severe shock (Financial Services Report, 2022). Consequently, an efficient financial sector through effective credit risk management is critical to sustainable financial stability for economic growth (Nasir et al., 2019). The research will use variables such as capital adequacy ratio, liquidity coverage ratio, return on assets before tax and leverage ratio to measure the financial stability of the UK banks.

### **Credit Risk Management**

The Banking sector is expose to various risks ranging from market, credit, operational and strategic risks (Shawtari et al., 2015). This research will focus on credit risk as one of the significant risks impacting on the financial stability of banks. Credit risk is the potential loss emanating from inability to meet financial commitments by contractual party in line with terms agreed (Brown & Moles, 2014). Default risk is due to inability of borrowers to repay their loans which put depositors at risk and expose bank to material credit losses that can translate to financial crisis that could lead to financial instability (Al Zaidanin & Al Zaidanin, 2021). Credit risk cannot be totally avoided as it impacts the fundamental activities of banks which is the loans availed to customers and banks are formulating credit policies to manage risk to improve asset quality through borrowers guarantees and collateral request (Al Zaidanin & Al Zaidanin, 2021). Banks that proactively managed their business risks especially credit risk gained competitive advantage because adverse situation will be anticipated and controls to mitigate the risks from crystallizing are put in place to prevent economic shocks (Bessis, 2010). Poor managing of credit risk will lead to non-performing loans and deemed as important variable to determine the risk asset quality of banking lending practice and have relationship with the banking sector credit risk (Lu and Boateng, 2018). Consequently, credit risk management is essential to financial stability of financial institutions globally and in the United Kingdom.

### **Overview of UK Bank**

Financial system of any nation is critical to economy development in the country which make it imperative for the Bank of England to continuously showed interest in the UK banking structure because inappropriate strategy can affect the financial stability of banks thereby impacting on the financial services that businesses and households rely on for smooth running of day-to-day activities (Davies et al., 2014). UK banks over the years have increased in structure and size and continuously providing several financial services through transforming of financial networking and expanding the probability of likely system-wide contagion in a situation of distress of an individual bank (Davies et al., 2014). The importance of banks globally cannot be overemphasized which resulted in classifying some banks as too significant to fail because the failure will negatively affect the growth of country`s economy and cause distortion that could lead to another government intervention through introducing incentives to prevent financial instability (Haldane and May, 2011). Davies et al. (2014) posited that UK banks provide three key functions to support the real economy in the areas of payment, settlement and transaction services, intermediation, risk transfer and insurance. Payment, settlement, and transaction services entail deposit provisioning, maintaining custody accounts for safe-keeping and providing services for efficient payments settlement between households and organizations. Intermediation entails funding of households, government or companies from household`s savings that are warehouse in the deposit accounts. Risk transfer and insurance entail insuring of deposits in the

custody of the banks against liquidity shocks (Davies et al., 2014). The significant roles of banks for economic growth have led to various reforms for sustainable financial stability and improvement of financial system in UK economy (Nasir et al., 2019). Banks in the UK are authorized by UK regulators such as Prudential Regulation Authority, Financial Conduct Authority before regulated activities or banking activities can be carried out. The top five banking groups dominating UK banking sector by controlling 50% of mortgage market, 77% of personal current account market and 85% of small business banking are Lloyds, HSBC, NatWest Group, Santander, and Barclays (Molyneux, 2017). Casu and Gall (2016) opined that despite various reforms in the banking sector to enhance UK banks financial stability to discharge its primary roles effectively, the financial crisis in 2007-2009 massively affected UK banks and suffered significant losses which led to government intervention to savage the situation. The financial crisis led to banking regulation reforms with the view of making banking sector more resilient to shocks by overhauling Basel Accords to ensure financial stability not only in the UK but for global financial sector improvement and sustainability (Casu and Gall, 2016).

### **UK Financial Services Regulation**

The effect of poor risks management especially credit risk on the effective discharging of the primary responsibility of banks to ensure financial stability mandates Banking Regulations (Shakdwipee & Mehta, 2017). Banking regulations have been evolving from Basel I (1988) to Basel II (2004) to Basel III (2010) in the UK before and after the financial crisis of 2007-2009 (Shakdwipee & Mehta, 2017). The deficiencies in Basel I led to the introduction of Basel II and Basel III surfaced to address the new risks that caused the financial crisis (Attik, 2011). The root cause of Basel II was the weakness of concentrating majorly on capital-based banking regulation while liquidity and leverage criteria were not considered for banks safety and soundness (Moosa, 2010). Basel III raised minimum capital adequacy ratio to 10.5% from 8% , net stable funding ratio (NSFR) and liquidity coverage ratio (LCR) ratios to measure long and short terms liquidity position were announced, and leverage ratio computed as ratio of Tier 1 capital to total exposure set at 3% were introduced to absorb losses/shocks and to improve risk management practices (Basel Committee on Banking Supervision, 2017). UK financial regulations were improved in response to global financial crisis that caused financial instability by scrapping Financial Services Authority (FSA) due to failure in discharging oversight functions appropriately as focus were mainly on process, system and control adequacy and significant aspects like capital adequacy, asset quality and liquidity were ignored (Financial Services Authority, 2011). To improve financial services in the UK, twin peak regulatory approach was introduced leading to creation of Prudential Regulation Authority (PRA) to enhance UK financial stability by ensuring safety and soundness of authorized PRA persons as well as minimizing the effect of financial system failure and Financial Conduct Authority (FCA) was formed to focus on conduct, confidence of financial system, consumer protection and ensure integrity of UK financial system (FSA Annual report, 2012/13). In addition. Financial Policy Committee created from Bank of England to protect and enhance financial stability to ensure resilience of UK financial system. The regulatory changes as explained above suggest the significance of banks in ensuring financial stability for economic growth and financial system soundness to prevent contagion effect because of risk crystallization.

### **Leverage Ratio (LR)**

Leverage ratio as described by Basel III is a percentage in ratio derived by dividing capital measure by exposure measure for a specific period (Ojo, 2014). Leverage ratio was introduced as a measure for banks soundness and stability in reaction to financial crisis of 2007-09 (Shakdwipee & Mehta, 2017). The main cause of the financial crisis worldwide was accumulation of leverage reported as on and off-balance sheet events despite that bank disclosed robust risk-based capital ratios (Shakdwipee & Mehta, 2017).

Leverage ratio was introduced to replace Basel II risk-based approach to restrict the growth of banks beyond its size of capital levels using simple non-risk-based approach (Basel Committee on Banking

Supervision, 2010). Leverage ratio is necessary to support risk-based capital measure by incorporating all on and off leverage arising from the activities of banks completely in the calculation of total exposure to prevent shocks that can cause financial instability (BCBS, 2017). Leverage ratio measures the relationship between banks capital and loan exposure expressed in percentage. The higher a leverage ratio connotes a better long-term solvency position signifying soundness' of banks financial stability (Lu and Boateng, 2018). The ratio is determined by dividing Tier 1 capital by total exposure and the threshold is set at 3% (Basel Committee on Banking Supervision, 2017).

$$\text{Leverage ratio} = \frac{\text{Capital measure}}{\text{Exposure measure.}}$$

### **Capital Adequacy Ratio/ Risk-weighted capital ratio**

Banks all over the world are expose to several risks because of the role play in the economy especially in the aspect of providing credit to households and organizations which prompt government regulations including setting threshold for minimum capital that banks must hold to ensure going concern and stability of financial system (Oino, 2021). According to Basel I (1988) and Basel 2 (2004) describe capital adequacy ratio as the minimum capital prescribed for banks when undertaking risks expressed as a ratio of regulatory capital to risk-weighted assets set at 8% for local banks and 10% for international banks (Francis and Osborne, 2012). Basel III (2010) proposed stricter approach to the determination of capital adequacy ratio in response to the aftermath of the financial crisis as well as increased the minimum threshold from 8% to 10.5%, ratio of 2.5% was introduced for capital conservative buffers as a percentage of risk weighted assets, countercyclical buffer of 2.5% and leverage ratio of 3% were recommended (Clayton, 2013). The objective of the change in the capital adequacy ratio is to ensure that credit risks in the banking activities are effectively managed for sound financial stability for economic growth. Clayton (2013) argued that despite the improved regulation and changes to regulatory guidelines in the banking sector, the issues of bank collapse will continue because business of banks involve risk taking and wrong perception or computation of risks especially credit risk will erode capital and create liquidity problems that will impact on financial stability.

$$\text{Capital Adequacy Ratio} = \frac{\text{Tier 1} + \text{Tier 2 capital}}{\text{Total Assets weighted by credit risk}}$$

### **Liquidity Cover Ratio**

Liquidity risk of each bank is arrived at through its ability to fulfil obligations as at when due but failure to meet obligations either through asset structure or as a result of unfavorable market conditions which cause delay or difficulty converting asset to cash promptly in order to meet obligation is tagged as liquidity risk (Buch and Goldberg, 2015). Basel III (2010) react to financial crisis stemming from illiquidity during 2007-09 by introducing two ratios to cater for long-term and short-term liquidity requirements; thus, net stable funding ratio (NSFR) and liquidity coverage ratio (LCR) ratios for effective liquidity risk management (BCBS, 2017). The computation of the ratio is as follows.

$$\text{LCR} = \frac{\text{High quality liquid assets}}{\text{Total net liquidity outflows}} \geq 100\%$$

Over 30-day time period.

$$\text{NSFR} = \frac{\text{available stable funding during one year}}{\text{Required stable funding during one year}}$$

Management of Liquidity is critical for banks survival and financial stability.

### **Non-Performing Loans and Loan Cover Ratio**

Asset quality of banks is critical for financial stability of financial institutions and ensuring minimal non-performing loans (NPLs) is significant for economic recovery and growth in a nation (Ozili, 2015). NPL is identified to be a major cause of continuous economic and banking crisis due to bad lending (Rajha, 2016). NPL occurs where loan availed to borrower is not repaid in line with the contractual obligations or when loans are not repaid when the amount required as repayment falls below loan value on the bank`s records (Bholat, 2016). Non-payment of loan will result to loan loss provisioning to be deducted from the profit of the banks to cover for loan at risk due to borrower`s default in contravention of contractual agreements. The proportion of loan loss provision to NPL is regarded as loan cover ratio (Bholat, 2016).

$$\text{NPL Ratio} = \frac{\text{Non-Performing Loans}}{\text{Total Risk Assets Loan}}$$

$$\text{Cover Ratio} = \frac{\text{Loan Loss Provision}}{\text{Non-Performing Loans}}$$

### **Return on Assets before Tax ratio**

The relationship between asset quality and bank`s return on asset is essential to analyze the stability and soundness of banking sector as non-performing loans can impair risk asset quality leading to credit losses and reduce bank`s profitability (Albertazzi and Gambacorta, 2009). Return on assets before tax is the aggregate of interest income and non-interest income minus operating expenses and loan loss provision expressed over the asset employed to generate the return (Albertazzi and Gambacorta, 2009). Financial soundness of banks is determined by asset quality which will impact positively on the return on asset of the banks because the lower the loan provisioning the higher the return on investment (Uhde and Heimeshoff, 2009).

### **Empirical Review**

To assess the effect of credit risk management on financial stability of banks in the United Kingdom, conclusions from previous research works were examined.

### **Credit Risk Management and Leverage Ratio.**

Dermine (2015) studied the impact of Basel III leverage ratio requirement, and the probability of bank runs and concluded there is need for leverage ratio to minimize the risk of bank run as arising from credit risk. The study suggested that effective credit risk management or loan default reduction strategy and leverage ratio introduction will limit credit risk exposure. Jarrow (2013) argues that leverage ratio is robust to estimate inaccuracies in credit disbursement process but accumulation of leverage in the economy is another worry for financial stability, hence the introduction of non-risk-based measure to complement risk-based methodology.

Avgouleas (2015) examined bank leverage ratio and financial stability a micro and macroprudential perspective. The study concluded that leverage ratios are catching the banks` exposures captured as off-balance items in the US, Canada, the UK, and Switzerland solving the concerns of scope. There is no objective evidence that greater leverage ratios will hinder credit growth or impact negatively on economic growth especially for developed countries like United

Kingdom and United States, but the position will be different in the eurozone . Further research on the impact of leverage ratio on credit risks revealed mixed conclusions. Blum (2008) argues that the actual risks of banks would be revealed through leverage ratio regulation stemming from information asymmetry approach. Hugonnier and Morellec (2017) concluded that the regulation of leverage and liquidity ratios will jointly decrease the probability of bank`s credit risk.

H01: Credit risk management does not have significant effect on the leverage of UK banks.

### **Credit Risk Management and Capital Adequacy Ratio**

Heydari and Abdoli (2015) conducted a study on the effect of credit risk management and capital adequacy on the financial performance of American business banks from 2009 to 2014. The variables such as capital adequacy, liquidity ratio, prior credit maturity, loss provision on loans and loan amount were used to investigate the banks performance. The data obtained from the financial reports of the sample banks was analyzed using multivariate linear regression and results revealed negative relationship between loan loss provisioning on loan amount, prior maturity of credit and bank`s performance while there is positive relationship between capital adequacy ratio and performance of banks. Francis and Osborne (2012) investigated the effect of capital requirements and bank behaviour in the UK, lessons for international capital standards and concluded that banks minimum capital requirements are significant factor for credit activities as well as balance sheet size and shock to bank capitalization impact significantly on lending.

H02: There is no relationship between credit risk management and capital adequacy ratio of banks in United Kingdom.

### **Credit Risk Management and Liquidity Coverage Ratio**

Cucinelli (2012) investigated the relationship between liquidity risk and probability of default evidence from euro area. The study used OLS regression technique to analyze panel data of 575 quoted and non-quoted Eurozone banks. The results revealed that there is a relationship between liquidity coverage ratio, credit rating and short-term liquidity position while no relationship exist between probability of default and long-term liquidity. Handorf (2014) examined the effect of cost of bank liquidity on the performance of banks in the United States. The study analytically explains the significance of liquidity and credit risk premium and note the cost implication on banks efforts on enhancing liquidity coverage ratio and banks bottom lines with reduced net interest income. Tran (2020) from the research work on funding liquidity and bank lending revealed that liquidity is significant for continued existence of banking activities and financial stability.

H03: Credit risk management will not have significant impact on the liquidity cover ratio of UK banks.

### **Credit Risk Management and Financial Stability**

Le and Nguyen (2022) investigated the relationship between a shift in lending toward households`, credit information sharing, and bank stability and eighty countries were examined from 2005 to 2015 using generalized method of moments as research design. The study concluded that financial instability of banks would increase due to shift in lending strategy toward household sector and sharing of credit information has positive effect on bank stability.



Le and Nguyen (2022) opined that banking sector would be stable by widely sharing of credit information for economic growth. Financial instability is reduced because of credit information sharing and it will lead to NPL ratio reduction because of effective control of credit risk (Guerineau and Leon, 2019).

This research will improve on the previous studies by investigating the effect of sub-variables and overall variables of credit risk management on the UK banks financial stability indicators.

Also, previous research works dwell more on performance of banks, but this research will expand the scope by focusing on financial stability. The research introduced additional variables such as capital adequacy ratio (CAR), liquidity coverage ratio (LCR), and leverage ratio to measure the financial stability of UK banks.

This study will evaluate the impact of non-performing loan to gross loan ratio (NPLR) as a measure of asset quality, loan cover ratio and total loans to total deposit on the financial stability of banks in the United Kingdom.

H04: There is no relationship between credit risk management return on assets before tax ratio of UK banks.

## **THEORETICAL REVIEW**

This section explains the main theories underpinning credit risk management and financial stability of banks and elaborate on the theoretical framework supporting the research variables. The study reviews the theories that underpin the research namely credit risk theory and financial intermediation theory.

### **The Credit Risk Theory**

The credit risk theory was created by Merton in 1974. The theory explains the risk of default or delay in repayment of loan amount or interest by borrowers in line with contractual terms. The theory has been employed in assessing credit defaults in commercial lending banks by assuming that an entity has a debt that will be due at future date and the entity defaults if the repayment value fails below the contractual amount of debt (Merton, 1973). Credit risk assessment is always significant to banks which led to committing of resources to managing the risks of possibility of default by counterparties (Hull, Nelken and White, 2005).

The risk is solely for the lenders which can disrupt banking activities leading to inability to return depositors funds and can result to bank's insolvency (Louzis et al., 2012). The risk can be mitigated through proper credit checks, loan insurance, personal or third parties guarantees and collection of collaterals to repay the obligations.

The theory is important to the study at it aims to appraise credit risk analysis in banks which is a critical variable in this research. Merton's model affirms that analysis of credit before disbursement and management of credit risk to ensure liquidity of banks is important to enhance the financial stability of banks which makes credit risk theory significant to this study.

### **Financial Intermediation Theory**

Financial intermediation theory was introduced by Diamond in 1984. The theory explains how information asymmetry between the lender and debtor are being managed to make available quality credit information to the borrower by the lender (Diamond, 1984). Transactional and informational cost emanating from information asymmetry will be minimized due to the existence of financial intermediaries' roles played by financial sectors such as banks (Levine et al., 2000). Financial intermediation theory will underpin the financial stability part of the study

as the theory emphasis on enhancing economic growth of a nation as deposits from savings are channeled into investment through loan creation that contributes to real sector growth and positive economic and financial development in a nation. The drawback of the theory is the failure to factor risk management process into the credit creation (Levine et al., 2000). Scholtens and Van Wensveen, (2000) argues that risk management process was recently critical to banking sector due to credit crunch which resulted to failure of some banks. The credit risk theory discussed previously will identify and manage the risks emanating from the financial intermediation activities. The theory is critical to the study because it helps in efficient functioning of the economy and translating to financial stability of banks.

## **METHODOLOGY**

The methodology employed for the study was anchored on Saunders et al. research onion methodology. Quantitative research methodology was used to explore the effect of credit risk management on the financial stability of UK banks. As a result, research philosophy, approach, strategy, design, data collection method and data analysis technique were aligned to quantitative research approach used for the study after considering the practicability and drawbacks of the options available. The research used non-probability sampling method to select top (5) banks in the United Kingdom. The data required were obtained from audited financial statements of selected banks from 2016 to 2021. The banks are Lloyds, HSBC, NatWest Group, Santander, and Barclays. The study used least square regression to estimate relationship between dependent and independent variables through hypotheses testing with the aid of Statistical Package of Social Sciences (SPSS). Post estimation and test robustness was tested using correlation analysis and f-test while Multicollinearity test was used to test estimation technique appropriateness.

Probability of F-test (anova) was utilized to measure each significance of explanatory variables at 5% level. The significance was determined by comparing the computed F-statistics (anova) with the tabulated given F-statistics to determine the significance. The parameter is statistically significant if the computed F- statistics (anova) value is less than the tabulated F- statistics (anova) value.

### **Research Variables**

$$Y=f(X)$$

Y=Financial Stability (FS)

X=Credit Risk Management (CRM)

The independent variables are total risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR), non-performing loan to gross loan ratio (NPLR) as a measure of asset quality and loan cover ratio (LC).

The dependent variables are capital adequacy ratio (CAR), liquidity coverage ratio (LCR), return on assets before tax (ROABT) and leverage ratio (LR) as a measure of stability.

## Model Specification

The models used in this study were adapted from the empirical study of Heydari and Abdoli (2015). The model was used to examine the effect of credit risk management and capital adequacy on the financial performance of American business banks, although some new variables were added to address the focus of this research. The models are:

$$LCR_{it} = \beta_0 + \beta_1 TRAR_{it} + \beta_2 TLTD_{it} + \beta_3 NPLR_{it} + \beta_4 LC_{it} + \mu_{it} \dots\dots\dots \text{Model 1}$$

$$LR_{it} = \beta_0 + \beta_1 TRAR_{it} + \beta_2 TLTD_{it} + \beta_3 NPLR_{it} + \beta_4 LC_{it} + \mu_{it} \dots\dots\dots \text{Model 2}$$

$$CAR_{it} = \beta_0 + \beta_1 TRAR_{it} + \beta_2 TLTD_{it} + \beta_3 NPLR_{it} + \beta_4 LC_{it} + \mu_{it} \dots\dots\dots \text{Model 3}$$

$$ROABT_{it} = \beta_0 + \beta_1 TRAR_{it} + \beta_2 TLTD_{it} + \beta_3 NPLR_{it} + \beta_4 LC_{it} + \mu_{it} \dots\dots\dots \text{Model 4}$$

$$FS_{it} = \beta_0 + \beta_1 TRAR_{it} + \beta_2 TLTD_{it} + \beta_3 NPLR_{it} + \beta_4 LC_{it} + \mu_{it} \dots\dots\dots \text{Main Model}$$

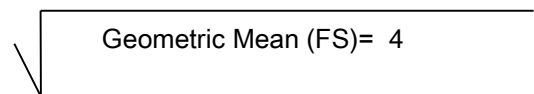
Where:

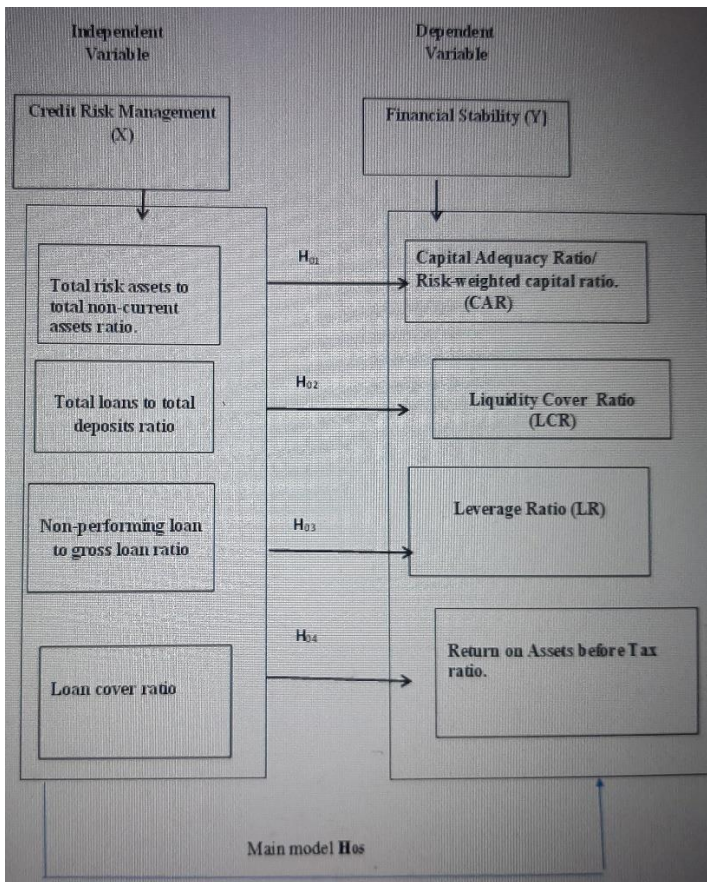
$\beta_0$  = Constant parameter/Intercept

$\beta_1 - \beta_4$  = Coefficients of the independent variables.

$\mu$  = Error term, which measure the probability of statistical error encountered

DS\*CAR\*FDC\*LR





## RESULTS AND DISCUSSION OF FINDINGS

### 4.3.1 Test of hypothesis one stating that Credit risk management will not have significant impact on the liquidity cover ratio of UK banks.

One of the objectives of this research is to investigate the impact of credit risk management on liquidity cover ratio of UK banks to establish if the liquidity cover ratio as a measure of financial stability is significant to the financial stability of United Kingdom banks. To achieve this objective, the below hypothesis was developed and tested through regression analysis method using SPSS version 28 to reveal the relationship between credit risk management and liquidity cover ratio as shown in Table 4.3.

Research Hypothesis 1 (H<sub>01</sub>): Credit risk management will not have significant impact on the liquidity cover ratio of UK banks.

$$LCR_{it} = \beta_0 + \beta_1 TRAR_{it} + \beta_2 TLDR_{it} + \beta_3 NPLR_{it} + \beta_4 LC_{it} + \mu_1$$

$$LCR_{it} = 196.916 + 0.074TRAR_{it} - 0.597TLDR_{it} + 0.265NPLR_{it} - 0.035LC_{it}$$

**Table 4.3 Regression of Credit Risk Management with Liquidity Cover Ratio.**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	196.916	19.413		10.143	<.001		
	TRAR	.075	.199	.074	.377	.709	.669	1.494
	NPLR	9.127	6.810	.265	1.340	.192	.656	1.523
	LC	-.019	.115	-.035	-.166	.869	.587	1.705
	TLDR	-.766	.236	-.597	-3.247	.003	.758	1.319

a. Dependent Variable: LCR

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.599 <sup>a</sup>	.359	.256	14.36226	.359	3.501	4	25	.021

a. Predictors: (Constant), TLDR, LC, TRAR, NPLR

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2888.429	4	722.107	3.501	.021 <sup>b</sup>
	Residual	5156.866	25	206.275		
	Total	8045.295	29			

a. Dependent Variable: LCR

b. Predictors: (Constant), TLDR, LC, TRAR, NPLR

Significant if < 5%.

### Interpretation

**Findings:** The estimates of Table 4.3 revealed that two measurements indicators for credit risk management i.e total risk assets to total assets ratio (TRAR) and non-performing loan to gross loan ratio (NPLR) as a measure of asset quality have positive effects on liquidity cover ratio while loan cover ratio (LC) and total loans to total deposits ratio (TLTDR) have negative effect on liquidity cover ratio. This is shown by the coefficients sign, which is  $\beta_1 = 0.074 > 0$ ,  $\beta_3 = 0.265 > 0$ ,  $\beta_2 = -0.597 < 0$  and  $\beta_4 = -0.035 < 0$  respectively. This indicated mixed relationship since there two measurement indicators of Credit Risk Management resulted to positive coefficients and remaining two measurement indicators have negative coefficients as captured in the model. This signifies that total risk assets to total assets ratio (TRAR) and non-performing loan to gross loan ratio (NPLR) as a measure of asset quality have positive effects on Financial Stability (FS) while loan cover ratio (LC) and total loans to total deposits ratio (TLTDR) have negative relationship on Financial Stability (FS) of UK banks. In-addition, the coefficient size of the independent variable indicates that one unit increase in total risk assets to total assets ratio (TRAR), non-performing loan to gross loan ratio (NPLR), loan cover ratio (LC) and total loans to total deposits ratio (TLTDR), will result to 0.074 and 0.265 unit rise and 0.597 and 0.035 unit reduction in Liquidity coverage ratio (LCR) respectively.

In addition, the probability of F-statistic value of 3.501 with p-value of 0.021 is lower than 5% level of significance which confirmed the significance of hypothesis one.

**Decision:** The regression analysis result revealed that Credit Risk Management(CRM) proxied by total

risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR), non-performing loan to gross loan ratio (NPLR) and loan cover ratio (LC) have combined significant effect on liquidity coverage ratio (LCR) of UK banks. Hence, the null hypothesis (H01) which states that Credit risk management will not have significant impact on the liquidity cover ratio of UK banks is hereby rejected.

**Discussion of Finding:** The regression estimates of hypothesis one revealed that Credit Risk Management(CRM) proxied by total risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR), non-performing loan to gross loan ratio (NPLR) as a measure of asset quality and loan cover ratio (LC) have combined significant effect on liquidity coverage ratio (LCR) of UK banks. The adjusted R-squared revealed that 25.6% variation in liquidity coverage ratio (LCR) of UK banks can be ascribed to credit risk management measures while 74.4% variations are attributable to other factors not incorporated in the model. The finding of this study is consistent with the outcome of Cucinelli (2012) who investigated the relationship between liquidity risk and probability of default evidence from euro area. The study used OLS regression technique to analyze panel data of 575 quoted and non-quoted banks in eurozone. The results revealed that there is a relationship between liquidity coverage ratio, credit rating and short-term liquidity position while no relationship exist between probability of default and long-term liquidity. Re-enforcing this consistency, Handorf (2014) studied the impact of cost of bank liquidity on the performance of banks in the United States. The study analytically explains the significance of liquidity and credit risk premium and note the cost implication on banks efforts on enhancing liquidity coverage ratio and banks bottom lines with reduced net interest income. Credit risk theory propounded by Merton affirms this position that analysis of credit before disbursement and management of credit risk will ensure liquidity of banks is enhanced for the financial stability of banks which makes credit risk theory significant to this study. Hartlage (2012) affirmed the position of this study but suggest effective liquidity management strategy through liquidity maturity transformation to prevent fund mismatch of borrowing for short-terms and lending for long-term. DeAngelo and Stulz (2015) confirmed the position of this study that liquidity is critical to the survival of banks globally. The significant of liquidity to banks as reported in this study was confirmed in the recent collapse of Silicon Valley Bank in United States due to frenetic withdrawal of deposits by depositors in a classic run on the bank as reported by CNN (2023). Tran (2020) from the research work on funding liquidity and bank lending revealed that liquidity is significant for continued existence of banking activities and financial stability.

#### **4.3.2 Test of hypothesis two stating that Credit risk management does not have significant effect on the leverage of UK banks.**

To achieve the second objective of evaluating the effect of credit risk management on the leverage ratio of UK banks to establish the impact of leverage ratio as a measure of financial stability of United Kingdom banks. To achieve this objective, the below hypothesis was developed and tested through regression analysis method using SPSS version 28 to reveal the relationship between credit risk management and leverage ratio as shown in Table 4.4.

Research Hypothesis 2 (Ho2): Credit risk management does not have significant effect on the leverage of UK banks.

$$LR_{it} = \beta_0 + \beta_1 TRAR_{it} + \beta_2 TLTDR_{it} + \beta_3 NPLR_{it} + \beta_4 LC_{it} + \mu_1$$

$$LR_{it} = 4.633 + 0.940TRAR_{it} - 0.330TLTDR_{it} + 0.133NPLR_{it} + 0.254LC_{it}$$

Table 4.4 Regression of Credit Risk Management with Leverage Ratio.

### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.633	.373		12.410	<.001		
	TRAR	.044	.004	.940	11.504	<.001	.669	1.494
	NPLR	.212	.131	.133	1.616	.119	.656	1.523
	LC	.006	.002	.254	2.908	.008	.587	1.705
	TLDR	-.020	.005	-.330	-4.300	<.001	.758	1.319

a. Dependent Variable: LR

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.942 <sup>a</sup>	.888	.870	.27617	.888	49.701	4	25	<.001

a. Predictors: (Constant), TLDR, LC, TRAR, NPLR

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.163	4	3.791	49.701	<.001 <sup>b</sup>
	Residual	1.907	25	.076		
	Total	17.070	29			

a. Dependent Variable: LR

b. Predictors: (Constant), TLDR, LC, TRAR, NPLR

Significant if < 5%.

## Interpretation

**Findings:** The regression analysis estimates on Table 4.4 revealed that three measurements indicators for credit risk management i.e. total risk assets to total assets ratio (TRAR), non-performing loan to gross loan ratio (NPLR) as a measure of asset quality and loan cover ratio (LC) have positive effects on leverage ratio while total loans to total deposits ratio (TLTDR) have negative effect on leverage ratio. This is shown by the coefficient signs, which is  $\beta_1 = 0.940 > 0$ ,  $\beta_3 = 0.133 > 0$ ,  $\beta_4 = 0.254 > 0$  and  $\beta_2 = -0.330 < 0$  respectively. This implied mixed relationship since three measurement indicators of credit risk management indicated positive coefficients and one measurement indicator has negative coefficient. This signifies that total risk assets to total assets ratio (TRAR), non-performing loan to gross loan ratio (NPLR) as a measure of asset quality and loan cover ratio (LC) have positive effects on Financial Stability (FS) while total loans to total deposits ratio (TLTDR) have negative relationship on Financial Stability (FS) of UK banks. In-addition, the coefficient size of the independent variable revealed that one unit surge in total risk assets to total assets ratio (TRAR), non-performing loan to gross loan ratio (NPLR), loan cover ratio (LC) and total loans to total deposits ratio (TLTDR), signifies 0.940, 0.133 and 0.254 unit increase and 0.330 unit reduction in leverage ratio (LR) respectively.

In addition, the probability of F-statistic value of 49.701 with p-value of 0.001 which is below 5% level of significance confirmed the significance of hypothesis two.

**Decision:** The regression analysis result revealed that credit risk management (CRM) proxied by total

risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR), non-performing loan to gross loan ratio (NPLR) as a measure of asset quality and loan cover ratio (LC) have a joint significant effect on leverage ratio (LR) of UK banks. Thus, the null hypothesis (H02) which states that credit risk management will not have significant impact on the leverage ratio of UK banks is hereby rejected.

**Discussion of Finding:** The regression estimates of hypothesis two revealed that Credit Risk Management(CRM) proxied by total risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR), non-performing loan to gross loan ratio (NPLR) as a measure of asset quality and loan cover ratio (LC) have combined significant effect on leverage ratio (LR) of UK banks. The adjusted R-squared revealed that the explanatory powers of independent variables jointly contributed 87% variation in leverage ratio (LR) of UK banks while 13% variations are attributable to other factors not incorporated in the model.

The finding of this study is consistent with the result of Dermine (2015) who studied the impact of Basel III leverage ratio requirement, and the probability of bank runs and concluded there is need for leverage ratio to minimize bank run risk arising from credit risk. The findings suggested that effective credit risk management or loan default reduction strategy and leverage ratio introduction will limit credit risk exposure. Jarrow (2013) further argues that leverage ratio is robust to estimate inaccuracies in credit disbursement process but accumulation of leverage in the economy is another worry for financial stability, hence the introduction of non-risk-based measure to complement risk-based methodology. Lu and Boateng (2018) reinforced the position of this study that the higher a leverage ratio connotes a better long-term solvency position signifying soundness' of banks financial stability and invariably reduced the credit risk. DeAngelo and Stulz (2015) confirmed the position of this study that credit risk management concluded that high leverage ratio is ideal for banks' financial stability.

#### **4.3.3 Test of hypothesis three stating that there is no relationship between credit risk management and capital adequacy ratio of UK banks.**

To accomplish the third objective of understanding the relationship between credit risk management and capital adequacy ratio of banks in United Kingdom to establish the impact of capital adequacy ratio as financial stability indicator. To achieve this objective, the below hypothesis was developed and tested through regression analysis method using SPSS version 28 to reveal the relationship between credit risk management and capital adequacy ratio as shown in Table 4.5.

Research Hypothesis 3 (Ho3): There is no relationship between credit risk management and capital adequacy ratio of UK banks.

$$CAR_{it} = \beta_0 + \beta_1 TRAR_{it} + \beta_2 TLTDR_{it} + \beta_3 NPLR_{it} + \beta_4 LC_{it} + \mu_1$$

$$CAR_{it} = 20.288 - 0.091 TRAR_{it} - 0.143 TLTDR_{it} + 0.374 NPLR_{it} + 0.427 LC_{it}$$



**Table 4.5 Regression of Credit Risk Management with Capital Adequacy Ratio.**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized	t	Sig.	Collinear Toleranc
		B	Std. Error	Coefficients Beta			
1	(Constant)	20.288	2.718		7.463	<.001	
	TRAR (%)	-.011	.028	-.091	-.405	.689	.669
	NPLR (%)	1.565	.954	.374	1.641	.113	.656
	TLDR (%)	-.022	.033	-.143	-.673	.507	.758
	LC (%)	.028	.016	.427	1.771	.089	.587

a. Dependent Variable: CAR (%)

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.385 <sup>a</sup>	.149	.012	2.01113	.149	1.090	4	25	.383

a. Predictors: (Constant), TLDR, LC, TRAR, NPLR

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.636	4	4.409	1.090	.383 <sup>b</sup>
	Residual	101.116	25	4.045		
	Total	118.752	29			

a. Dependent Variable: CAR

b. Predictors: (Constant), TLDR, LC, TRAR, NPLR

Significant if < 5%.

**Interpretation**

**Findings:** The regression analysis estimates on Table 4.5 revealed that two measurements indicators for Credit Risk Management i.e., Loan Cover ratio (LC) and non-performing loan to gross loan ratio (NPLR) have positive effects on capital adequacy ratio while total risk assets to total assets ratio (TRAR) and total loans to total deposits ratio (TLTDR) have negative effect on capital adequacy ratio. This is shown by the coefficients sign, which is  $\beta_3 = 0.374 > 0$ ,  $\beta_4 = 0.427 > 0$ ,  $\beta_1 = -0.091 < 0$  and  $\beta_2 = -0.143 < 0$ , respectively. This indicated mixed relationship since two measurement indicators of credit risk management resulted to positive coefficients and remaining two measurement indicators have negative coefficients as captured in the model. This signifies non-performing loan to gross loan ratio (NPLR) and loan cover ratio (LC) have positive effects on financial stability (FS) while total risk assets to total assets ratio (TRAR) and total loans to total deposits ratio (TLTDR) have negative relationship on financial stability (FS) of UK banks. In-addition, coefficient size of the independent variable revealed that one unit surge in non-performing loan to gross loan ratio (NPLR), loan cover ratio (LC), total risk assets to total assets ratio (TRAR) and total loans to total deposits ratio (TLTDR),

will result to 0.374 and 0.427 unit rise and 0.091 and 0.143 unit reduction in capital adequacy ratio (CAR) respectively.

In addition, the probability of F-statistic value of 1.090 with p-value of 0.383 which is higher than 5% level of significance confirmed the insignificance of hypothesis three.

**Decision:** The regression analysis result revealed that credit risk management(CRM) proxied by total risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR), non-performing loan to gross loan ratio (NPLR) as a measure of asset quality and loan cover ratio (LC) does not have a joint significant effect on capital adequacy ratio (CAR) of UK banks. Therefore, null hypothesis (H03) which states there is no relationship between credit risk management and capital adequacy ratio of banks in United Kingdom will not be rejected.

**Discussion of Finding:** The regression estimates of hypothesis three revealed that Credit Risk Management(CRM) proxied by total risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR), non-performing loan to gross loan ratio (NPLR) and loan cover ratio (LC) does not have a joint significant effect on capital adequacy ratio (CAR) of UK banks. The adjusted R-squared revealed that 1.2% variation in capital adequacy ratio (CAR) of UK banks can be ascribed to credit risk management measures while 98.8% variations are attributable to other factors not incorporated in the model. The finding of this study is inconsistent with the outcome of the study conducted by Francis and Osborne (2012) who investigated the effect of capital requirements and bank behaviour in the UK, lessons for international capital standards and concluded that banks minimum capital requirements are significant factor for credit activities as well as balance sheet size and shock to bank capitalisation impact significantly on lending. Reinforcing this inconsistency, Heydari and Abdoli (2015) conducted research on the impact of credit risk management and capital adequacy on the financial performance of American business banks from 2009 to 2014. The variables such as capital adequacy, liquidity ratio, prior credit maturity, loss provision on loans and loan amount were used to investigate the banks performance. The data obtained from the financial reports of the sample banks was analysed through multivariate linear regression and results revealed negative relationship between loan loss provisioning on loan amount, prior maturity of credit and bank`s performance while it confirms that there is positive relationship between capital adequacy ratio and performance of banks.

#### **4.3.4 Test of hypothesis four stating that there is no relationship between credit risk management and return on assets before tax ratio of UK banks.**

To accomplish the fourth objective of examining the relationship between credit risk management and return on assets before tax ratio to establish the impact of return on assets before tax ratio as a measure of financial stability of United Kingdom banks. To achieve this objective, the below hypothesis was developed and tested through regression analysis method using SPSS version 28 to investigate the relationship between credit risk management and return on assets before tax ratio as shown in Table 4.6.

Research Hypothesis 4 (Ho4): There is no relationship between credit risk management and return on assets before tax ratio of UK banks.

$$ROABTit = \beta_0 + \beta_1TRARit + \beta_2TLTDRit + \beta_3NPLRit + \beta_4LCit + \mu_1$$

$$ROABTit = 1.921 - 0.312TRARit - 0.106TLTDRit + 0.291NPLRit - 0.038LCit$$

**Table 4.6 Regression of Credit Risk Management with return on assets before tax ratio**

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.921	1.604		1.197	.242		
	TRAR	-.024	.016	-.312	-1.462	.156	.669	1.494
	NPLR	.759	.563	.291	1.349	.189	.656	1.523
	LC	-.002	.009	-.038	-.168	.868	.587	1.705
	TLDR	-.010	.020	-.106	-5.30	.601	.758	1.319

a. Dependent Variable: ROABT

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.487 <sup>a</sup>	.237	.115	1.186957	.237	1.947	4	25	.134

a. Predictors: (Constant), TLDR, LC, TRAR, NPLR

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.971	4	2.743	1.947	.134 <sup>b</sup>
	Residual	35.222	25	1.409		
	Total	46.192	29			

a. Dependent Variable: ROABT

b. Predictors: (Constant), TLDR, LC, TRAR, NPLR

Significant if < 5%.

### Interpretation

**Findings:** The estimates of the regression analysis on Table 4.6 revealed that three measurements indicators for credit risk management i.e., total risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR) and loan cover ratio (LC) have negative effects on return on assets before tax ratio while non-performing loan to gross loan ratio (NPLR) has positive effect on return on assets before tax ratio. This is shown by the coefficient signs, which is  $\beta_1 = -0.312 < 0$ ,  $\beta_2 = -0.106 < 0$ ,  $\beta_4 = -0.038 < 0$  and  $\beta_3 = 0.291 > 0$  respectively. This indicated mixed relationship since three measurement indicators of Credit Risk Management indicated negative coefficients and one measurement indicator has positive coefficient. This signifies that total risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR) and loan cover ratio (LC) have negative effects on Financial Stability (FS) while non-performing loan to gross loan ratio (NPLR) have positive relationship on Financial Stability (FS) of UK banks. In-addition, coefficient size of the independent variable revealed that one unit surge in total risk assets to total assets ratio (TRAR), non-performing loan to gross loan ratio (NPLR), loan cover ratio (LC) and total loans to total deposits ratio (TLTDR), amount to 0.312, 0.106 and 0.038 unit reduction and 0.291 unit rise in return on assets before tax ratio (ROABT) respectively. In addition, the probability of F-statistic value of 1.947 with p-value of 0.134 is higher than 5% level of significance and confirmed the overall insignificance hypothesis four.

**Decision:** The regression analysis result revealed that credit risk management (CRM) proxied by total risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR), non-performing loan to gross loan ratio (NPLR) as a measure of asset quality and loan cover ratio (LC) does not have

a joint significant impact on assets before tax ratio (ROABT) of UK banks. Hence, the null hypothesis (H04) which states that there is no relationship between credit risk management return on assets before tax ratio of UK banks will not be rejected.

**Discussion of Finding:** The regression estimates of hypothesis four revealed that credit risk management (CRM) proxied by total risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR), non-performing loan to gross loan ratio (NPLR) as a measure of asset quality and loan cover ratio (LC) does not have a joint significant effect on assets before tax ratio (ROABT) of UK banks. The adjusted R-squared revealed that 11.5% variation in assets before tax ratio (ROABT) of UK banks can be attributable to credit risk management measures while 88.5% variations are attributable to other factors not incorporated in the model. The review of previous research conclusion revealed mixed conclusions as the result of the study is inconsistent with the contribution of Uhde and Heimeshoff (2009) who concluded that financial soundness of banks is determined by asset quality which will impact positively on the return on asset of the banks because the lower the loan provisioning, the higher the return on investment while Fathi, Zarei and Esfahani (2012) concluded that there is no significant correlation between credit risk and return on equity which is consistent with the result of this study that credit risk does not have significant impact on assets before tax ratio (ROABT) of UK banks.

**Test of overall research aim of the study.**

The research aim of this dissertation is to investigate the effect of credit risk management on financial stability of banks in the United Kingdom. Credit risk management represented by total risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR), non-performing loan to gross loan ratio (NPLR) as a measure of asset quality and loan cover ratio (LC). To achieve research aim, the below hypothesis was developed and tested through regression analysis method using SPSS version 28 to establish the relationship between credit risk management and financial stability of UK banks as shown in Table 4.7.

Research Hypothesis 5 (Ho5): No relationship between credit risk management and financial stability of UK banks.

$$FS_{it} = \beta_0 + \beta_1 TRAR_{it} + \beta_2 TLTDR_{it} + \beta_3 NPLR_{it} + \beta_4 LC_{it} + \mu_{it} \dots$$

$$FS_{it} = 55.943 + 0.076TRAR_{it} - 0.589TLTDR_{it} + 0.313NPLR_{it} + 0.024LC_{it}$$

**Table 4.7 Regression of Credit Risk Management with Financial Stability indicators.**

		Coefficients <sup>a</sup>					Collinearity Statistics	
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Tolerance	VIF
	B	Std. Error	Beta					
1	(Constant)	55.943	5.276		10.603	<.001		
	TRAR	.021	.054	.076	.387	.702	.669	1.494
	NPLR	2.917	1.851	.313	1.576	.128	.656	1.523
	LC	.004	.031	.024	.115	.909	.587	1.705
	TLDR	-.205	.064	-.589	-3.190	.004	.758	1.319

a. Dependent Variable: FS

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			
						F Change	df1	df2	Sig. F Change
1	.595 <sup>a</sup>	.354	.251	3.90334	.354	3.427	4	25	.023

a. Predictors: (Constant), TLDR, LC, TRAR, NPLR

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	208.877	4	52.219	3.427	.023 <sup>b</sup>
	Residual	380.902	25	15.236		
	Total	589.779	29			

a. Dependent Variable: FS

b. Predictors: (Constant), TLDR, LC, TRAR, NPLR

Significant if < 5%.

## Interpretation

**Findings:** The estimates of the regression analysis on Table 4.7 revealed that three measurements indicators for credit risk management i.e. Total risk assets to total assets ratio (TRAR), non-performing loan to gross loan ratio (NPLR) as a measure of asset quality and loan cover ratio (LC) have positive effects on financial stability of banks in the UK while total loans to total deposits ratio (TLTDR) has negative effect on the financial stability. This is shown by the coefficient signs, which is  $\beta_1 = 0.076 > 0$ ,  $\beta_3 = 0.313 > 0$ ,  $\beta_4 = 0.024 > 0$  and  $\beta_2 = -0.589 < 0$ , respectively. The result indicated strong relationship since three measurement indicators of credit risk management indicated positive coefficients and one measurement indicator has negative coefficient. This signifies that total risk assets to total assets ratio (TRAR), non-performing loan to gross loan ratio (NPLR) as a measure of asset quality and loan cover ratio (LC) have positive effects on Financial Stability (FS) of UK banks while total loans to total deposits ratio (TLTDR) has negative relationship on the financial stability (FS) of UK banks. In-addition, the coefficient size of the independent variable revealed that one unit surge in total risk assets to total assets ratio (TRAR), non-performing loan to gross loan ratio (NPLR), loan cover ratio (LC) and total loans to total deposits ratio (TLTDR), will result to 0.076, 0.313, 0.024 unit rise and 0.589 unit diminution in financial stability (FS) of UK banks respectively.

In addition, the probability of F-statistic value of 3.427 with p-value of 0.023 which is below 5% level of significance and confirmed the overall significance of the study.

**Decision:** The study consequently concluded that there is significant positive relationship between credit risk management and financial stability of selected sampled banks in the United Kingdom for the sampled period since the regression analysis outcome revealed that the probability of F-statistic value of 3.427 with p-value of 0.023 is lower than 5% level of significance and confirmed the overall significance of the main aim of the study and that credit risk and financial intermediation theories are critical to the study because it helps in the efficient functioning of the nation, translating to financial stability of banks (Fell and Schinasi, 2005).

**Discussion of Finding:** The regression estimates of the main aim of the research revealed that there is significant positive effect between credit risk management and financial stability of sampled banks in the United Kingdom. The adjusted R-squared revealed that the explanatory powers of independent variables jointly contributed 25.1% variation in financial stability (FS) of UK banks while 74.9% variations are attributable to other factors not incorporated in the model.

The study was motivated by credit theory developed by Merton and empirical study in Damar, Meh and Terajima (2013) that linked the leverage and effective liquidity management to financial stability

of financial sector. The conclusion of this research is consistent with the outcome of Zou and Li (2014) that credit risk management have significant positive effect on banks financial performance and financial stability.

The findings reinforced the position of the Bank of England 2022 stability report confirming the importance of UK banks roles in ensuring the financial stability of the UK economy considering the global economic challenges. UK economic outlook have weakened materially because of global economic crisis and suggested increase in capital buffer as a proactive measure to absorb probable losses to support UK economy in the occurrence of a severe shock (Financial Services Report, 2022). Consequently, according to Nasir et al. (2019) an efficient financial sector through effective credit risk management is critical to sustainable financial stability of banks for economic growth (Nasir et al., 2019)

## **CONCLUSION**

The study investigated the effect of credit risk management on financial stability of banks in the United Kingdom. The study linked all the previous chapters by making inferences that will help future decision making and research on credit risk management and financial stability. By fulfilling the four key research objectives, the research has achieved the overarching aim which was to evaluate the effect of credit risk management on financial stability of banks in the United Kingdom. According to the research findings, credit risk management and financial stability are significantly related based on the regression results of the study. Banking sector would be stable through effective credit risk management and by widely sharing of credit information for economic growth (Damar, Meh and Terajima 2013; Zou and Li 2014; Nasir et al. 2019; Financial Services Report 2022; Le and Nguyen, 2022). The study confirmed the degree of changes in dependent variables as triggered by independent variables of the study as shown by the adjusted R-squared.

The study concluded that Credit Risk Management(CRM) proxied by total risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR), non-performing loan to gross loan ratio (NPLR) as a measure of asset quality and loan cover ratio (LC) have a joint significant impact on financial stability of UK banks.

### **Research Implications and Recommendations**

The findings and conclusion of the research are significant for economic development in financial services and would be useful to support stakeholders of UK banks specifically the regulators, CEO/management of banks, investors, researchers, and depositors. The study can conclude, based on the data analysed that Credit Risk Management (CRM) proxied by total risk assets to total assets ratio (TRAR), total loans to total deposits ratio (TLTDR), non-performing loan to gross loan ratio (NPLR) and loan cover ratio (LC) have a joint significant effect on financial stability of UK banks. The conclusion of this study is a significant contribution to knowledge, literatures, and practices. Consequently, we proffered the following recommendations;

#### **Financial Services Regulators**

The study confirmed the importance of effective credit risk management on liquidity management and substantiate that banks survival is sustained through implementation of policies in the areas of credit risk, liquidity as well as leverage/exposure limit of the banks to prevent financial instability. The conclusion of the study provides information to regulators on the importance of their oversight functions on banks to enhance effective management of credit risks by enforcing compliance with risk triggers as stipulated in the Basel Accords.

#### **CEO/Management of Banks.**

The study provides information that would assist CEO/Management of bank to effectively manage

banks activities by putting in place mechanisms that will ensure effective credit risk management for improved banks financial stability based on the conclusion of the research. The research affirmed the significance of credit risk management on the financial stability of banks in the United Kingdom. Management of banks should put strategy in place to ensure continuous stress testing of financial stability indicators highlighted in this study to prevent financial shocks that will expose banks to financial instability and economy crisis.

#### **Investors.**

The study highlights the importance of credit risk management on the financial stability of UK banks which will be area of interest for local and foreign investors. High non-performing loans will lead to poor credit rating which will invariably have negative impact on return on investment. Investors are one of the major fund providers helping to maintain liquidity strength of the financial sector and economy at large. The study provides information on factors that would impact on the financial stability of bank which investors are to consider in making optimal investment strategy decisions (Le and Nguyen, 2022).

#### **Researchers.**

The study reinforces the position of credit risk theory explaining its importance to credit risk management around customers' default or counterparty risk. The research contributes to the body of knowledge in the areas of effect of credit risk management on financial stability of UK banks and the empirical findings would support research evidence in the future.

#### **Depositors.**

Depositors of funds are keen in knowing the effect of credit risk management on the financial stability of UK banks to enable them to make a reliable decision on the safety of their savings. Poor credit risk management will impact on the liquidity position of banks and will negatively affect meeting the demand of depositors. The significant of liquidity to banks as reported in this study was confirmed in the recent collapse of Silicon Valley Bank in United States due to frenetic withdrawal of deposits by depositors which caused run on the bank as reported by CNN (2023). The information in this study will assist depositors to determine financial stability of banks which will influence fund depositors' decision making.

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