
Liquidity and financial performance of listed commercial Banks in Nigeria

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Abstract

Liquidity and profitability are two important concepts in business especially in commercial banking which require a delicate balance for the firm to effectively achieve its goal of meeting various stakeholder expectation as well as achieve sustainable growth. The focus of the study is to analyse the relationship between liquidity and financial performance of listed commercial banks in Nigeria. The scope of the study is 2010-2022 period and a sample of nine out of the fourteen listed commercial banks as at 2022 was used. Data for liquidity and financial performance collected from the audited published annual reports of all nine banks for all the years in the study period, obtained from their respective websites. Liquidity is the independent variable measured by Current Ratio (CUR), Cash Ratio (CAR) and Liquid Asset Ratio (LAR) while financial performance as the dependent variable was represented by profitability, proxied by Operating Profit Margin (OPM) and Earning Per Share (EPS). Averaged cross-sectional analysis model was adopted using Multivariate Analysis of Variance (MANOVA) and Pearson correlation in IBM SPSS Statistics 20. Results of analysis showed that both OPM and EPS correlate negatively with CUR, CAR and LAR. While the relationship of liquidity measures with OPM is not statistically significant, the relationship with EPS is very significant. It is recommended that managers of commercial banks should pay attention to EPS ratios in evaluating the trade-off between liquidity and profitability

Keywords: Performance, impact, profitability, share price, operating profit margin, net interest margin, earnings per share

INTRODUCTION

Liquidity and working capital are related concepts that have ordinarily been used to mean the same thing but in technical terms there is an important thin line between them. Liquidity may be regarded as the availability of cash and near cash assets to timely settle maturing obligations of an entity (Odili, Ezendu & Eke, 2019). On the other hand, working capital is that part of a firm's total capital that is used for day-to-day running of the business which is usually represented by the excess of current assets over current liabilities. In a nutshell, while liquidity is concerned with the availability of sufficient assets which can quickly be converted to cash to timely settle financial obligations, especially in the short-term, working capital is the primary metric to measure liquidity (Investopedia.com). Drawing from the foregoing, it is understood that while working capital management deals with the availability of current assets to settle current liabilities, liquidity management deals with the speed and efficiency with which those current assets can be converted to cash in order to offsets current liabilities as they fall due without exposing the firm to risk of inability to pay known as liquidity risk. The goal of working capital management is to optimize the trade-off between liquidity and profitability. Hence, liquidity is believed to affect the financial performance of any organization including commercial banks. Working capital is a common metric used to measure a company's liquidity or its ability to generate cash to pay for its short-term financial obligations. Working capital also provides insight into the operational efficiency and overall financial health of a company. A company's working capital is the capital necessary for it to function on a daily basis, as it requires a certain amount of cash on hand to cover unexpected costs, make regular payments to pay bills, and buy raw materials used in production (Hawley, 2021). For a sustainable financial health of a company, effective management of both liquidity and working capital is very important.

The term commercial bank refers to a financial institution that accepts deposits and offers different banking and financial products. Commercial banks provide these services to people and businesses. Commercial banks make money by providing and earning interest from loans such as mortgages, auto loans, business loans, and personal loans. Customer deposits provide banks with the capital to make these loans. Commercial banks provide basic banking services and products to the general public, both individual consumers and businesses (www.investopedia.com). A commercial bank is a financial institution that accepts deposits from the public and gives loans for the purposes of consumption and investment to make a profit (Wikipedia). For commercial banks, according to Straley (2023), liquidity management is a bank's ability to fund assets and meet financial obligations without incurring unacceptable financial costs. It is the collection of actions banks take to mitigate liquidity risks. The purpose of liquidity management is to allow an organization to meet its short-term financial obligations promptly and without substantial losses (Koh, 2023). Koh observed that Liquidity management in banks is crucial for multiple reasons including that investors use accounting liquidity to assess a bank's financial health and banks use it to monitor and guide against a run on deposits which can happen anytime, prompted by external panic-inducing events out of a bank's control. Nigerian commercial banks witnessed such run during the days before the 2023 general elections as a result of panic withdrawals which was amplified by the improperly managed Naira redesign policy of the time, all of which were outside the control of the banks. Although the situation caused by macroeconomic manipulations and customers were still leaving banks which could not provide sufficient cash to operate accounts to those banks that could give higher withdrawal amounts per time. Apart from externally-induced panic which can put liquidity pressure on banks, other factors like consistently growing inflation and interest rates affect the liquidity positions of commercial banks. Like any other organization,

for a bank, lack of liquidity and inability to settle short-term obligations will quickly erode customers and creditors' confidence in the bank. In reaction, they will take their businesses elsewhere or engage the bank in litigations that could be damaging to the operation of the bank. This loss of business and avoidable costs associated with legal actions will negatively impact on the financial performance of the bank. As a way of ensuring that such situation does not occur, Koh (2023) identified what characterizes sound liquidity management as:

- Continuous tracking of all incoming and outgoing cash flows
- Diversification of revenue streams and investment portfolios to include highly liquid assets
- Unceasing overview of receivables and liabilities.
- Precise, detailed, and constantly updated liquidity and contingency funding planning

An effective working capital policy is crucial to achieving the above targets of liquidity management. Establishing a reasonable working capital policy will enable companies to increase profitability and create value for investors (Nguyen, Phạm & Nguyen, 2020). Working capital management (WCM) is a critical aspect of financial management for banks, as it is claimed to directly influence their profitability and overall financial health. Efficient management of working capital is essential for ensuring smooth operations, minimizing losses and cost reduction, hence boosting profitability and maximizing shareholder value. In the banking sector, where liquidity management is paramount, the relationship between liquidity practices and financial performance has received significant attention from researchers, investors, and policymakers. Effective working capital management plays a pivotal role in determining a company's financial health and overall performance. This involves monitoring and optimizing the company's current assets and current liabilities to ensure that there is sufficient liquidity to meet short-term obligations. Generally, poor working capital management can lead to liquidity issues, and missed investment opportunities. These negatively impact on profitability and ultimately the company's share price. Inadequate working capital management has been a problem for firms in Nigeria (Oluboyede, 2007 as cited in Akinyomi & Chukwumerije, 2011) and commercial banks are not an exception.

As put forward by Ross (2021), Banks are often evaluated on their liquidity, or their ability to meet cash and collateral obligations without incurring substantial losses. In either case, liquidity management describes the effort of investors or managers to reduce liquidity risk exposure. Investors still use Liquid Asset ratios to evaluate the value of a company's stocks or bonds, but they also care about a different kind of liquidity management. To this effect, assets that cannot be exchanged at a current price are considered illiquid.

Investors and other stakeholders mostly evaluate the performance of companies using financial metrics. These stakeholders including actual and potential investors, management, creditors, employees, the Government and regulatory bodies, tax authorities and the general public are interested in the financial performance of an organization for their various purposes. Financial metrics involve the use of ratios and trends in financial analysis to provide relevant information as to the financial health of the organization so as to guide decision making. Profitability as an important element of financial performance is considered essential for the survival and long-term growth of business organizations. As this study is about commercial banks, Operating Profit Margin (OPM) and Earnings Per Share (EPS) have been adopted as metrics to measure profitability because of their general acceptability as a key metric to assess performance of commercial banks in Nigeria. Liquidity is equally

measured by ratios. Key of such ratios as it concerns banks are current ratio, cash ratio and Liquid Asset ratio. This study adopts the three ratios as proxies to measure liquidity.

The researcher believes that by this study, questions regarding the relationship between liquidity and performance will be addressed. To achieve this the study adopts a comprehensive approach that integrates theoretical framework and empirical evidence based on previous studies contributing to the ongoing discourse of liquidity and financial performance in Nigeria.

Objective of Study

The aim of this study is to determine the relationship between liquidity management and financial performance of listed commercial banks in Nigeria. Specific objectives are summarized below:

1. To analyse the relationship between current ratio (CUR) and Operating Profit Margin (OPM) of listed commercial banks.
2. To establish the influence of cash ratio (CAR) on Operating Profit Margin (OPM) of listed commercial banks.
3. To determine whether Liquid Asset ratio (LAR) has association with Operating Profit Margin (OPM) of listed commercial banks.
4. To analyse the relationship between current ratio (CUR) and Earnings per share (EPS) of listed commercial banks.
5. To establish the influence of cash ratio (CAR) on Earnings per share (EPS) of listed commercial banks.
6. To determine whether Liquid Asset ratio (LAR) has association with Earnings per share (EPS) of listed commercial banks.

Research questions

1. How does current ratio (CUR) relate to Operating Profit margin (OPM) in listed commercial banks?
2. What influence does cash ratio (CAR) have on Operating Profit margin (OPM) of listed commercial banks?
3. What association exists between Liquid Asset ratio (LAR) and Operating Profit margin (OPM) of listed commercial banks?
4. How does current ratio (CUR) relate to Earnings per share (EPS) in listed commercial banks?
5. What influence does cash ratio (CAR) have on Earnings per share (EPS) of listed commercial banks?
6. What association exists between Liquid Asset ratio (LAR) and Earnings per share (EPS) of listed commercial banks?

Research Hypotheses

1. H₀: Current ratio (CUR) does not have significant relationship with Operating Profit Margin (OPM) of commercial banks.
2. H₀: Cash ratio (CAR) has no significant influence on Operating Profit Margin (OPM) of commercial banks.
3. H₀: Liquid Asset ratio (LAR) does not significantly associate with Operating Profit Margin (OPM) of commercial banks.

4. H0: Current ratio (CUR) does not have significant relationship with Operating Profit Margin (OPM) of commercial banks.
5. H0: Cash ratio (CAR) has no significant influence on Operating Profit Margin (OPM) of commercial banks.
6. H0: Liquid Asset ratio (LAR) does not significantly associate with Operating Profit Margin (OPM) of commercial banks.

Scope of the study

This study is concerned with exploring the relationship between liquidity management and financial performance of listed commercial banks in the Nigeria stock Exchange. The independent variable is liquidity management, proxied by current ratio (CUR) and cash ratio (CAR) and Liquid Asset ratio (LAR). Operating Profit Margin (OPM) is the dependent variable and proxy for financial performance. The scope of this study covers a sample of nine (9) commercial banks for the period 2010-2022. To ensure the currency of this work, the researcher collected data to 2022 because at the time of the study financial data of commercial banks for year 2023 were not completely published. Including incomplete data for analysis may impair the outcome of the study: hence, the exclusion of 2023 in the scope of the study.

LITERATURE REVIEW

Various literature was reviewed in this study. These include conceptual, empirical and theoretical literature. This literature review aims to provide a comprehensive overview of existing empirical studies on existing relationship between liquidity management and financial performance of banks. The review is structured as follows:

Conceptual Review

Financial Performance

There are numerous definitions of financial performance in the management science literature. Didin and Mochamad (2018) describe financial performance as a measurement of a firm's capacity to produce profit or revenue. The term financial performance generally denotes a measure of an organization's overall financial wealth over a given period of time. Ware (as cited in Ajose & Solape, 2021) proposed that it gauges the management efficiency in the use of organizational resources. Richard, Devinney, Yip and Johnson (2009) declared that firm performance is a multidimensional concept that covers various areas such as operational effectiveness, corporate reputation, and organizational survival. Pertaining to banks, European Central Bank (2010) recognises bank performance as the capacity to generate sustainable profitability that can guard against unexpected losses, strengthen capital position and help improve future profitability by investing retained earnings. Financial performance is viewed as the outcome of an enterprise's capital mobilization, use, and management (Dinh & Pham, 2020). Profitability is a common approach of assessing financial performance of organization as the objective of companies is to maximize profit and ultimately, shareholders value.

The concept Profitability

Profitability is the ability of an organization to utilize its resources in such a way that it can generate more income than expenses. Profitability is a measure of how efficiently a business converts its resources into increased net worth for its owners. Profitability can also be described as the ability to gain returns from resources available in a given investment (Kang, Lee & Huh, 2010 as cited in Sylvester & Ejike, 2014). Profitability According to

(Sartono, 2010 as cited in Ifoastri, Teguh, Yayuk & Ratnawati, 2020) is the ability of the company earns a profit in its influence by sales, total assets, as well as its capital. Firms are usually categorized as profit making organisations and non- profit-making organisations. Non-profit making organisation are formed for purpose of meeting some objectives which differ from making profit and such objectives may include charity, religion and social activities etc. On the other hand, making profit is the core objective of profit-making organisations and this is the only reason such firms would be liquidated if they are not making sufficient profit to sustain the business (Otekunrin, Fagboro, Nwanji, Asamu, Ajiboye & Falaye 2019). Profitability can be measured in absolute naira amount which is simply revenue minus expenses. But usually, it is more meaningfully expressed in relative terms called ratios. Profitability ratios are financial benchmarks used to measure and evaluate the company's ability to generate income related to revenues, balance sheet assets, operating cost and shareholders' equity within a specific period of time (Lesakova, 2007). These ratios are accounting metrics to measure profitability. Ratios largely used by researchers to measure profitability include Return on Assets (ROA), Return on Equity (ROE) and Return on Investment (ROI) (Otekunrin et al., 2019). However, for this study, the researcher has used Operating profit margin (OPM) and Earnings per share (EPS), in measuring profitability performance of banks. Firstly, because previous studies did not actually use Operating profit margin (OPM) to measure profitability and secondly, because EPS is a very important and commonly accepted metric of profitability in the commercial banking industry in Nigeria.

Operating Profit Margin (OPM)

According to Manglik and Goyal (as cited in Dwiyanthi, Husna & Handayani, 2021), "Operating profit margin is a comparison between operating profit and sales". The operating profit margin is a ratio that describes what is usually called the pure profit received for every naira of sales made. Operating Profit Margin = Net Profit Before tax divided by sales (turnover) or total revenue in the case of a bank

Earnings per share (EPS)

Islam, Rahman, Choudhury and Adnan (2014) stated that the term earnings per share (EPS) represents the portion of a company's earnings, net of taxes and preferred stock dividends, that is allocated to each share of common stock. The figure can be calculated simply by dividing net income earned in a given reporting period (usually quarterly or annually) by the total number of shares outstanding during the same term. Because the number of shares outstanding can fluctuate, a weighted average is typically used (Besely 2006, P.20 as cited by Islam et al., 2014)

Liquidity Management

Liquidity management is the preservation of an adequate cash position and its corresponding balances to meet a firm's financial commitments at any given time (Ajose & Solape, 2021) as cited in Almakura (2020). As stated in Eze and Agu (2020) "what assert a company's liquidity management is said to be at its best if it is founded on the premise of collecting cash from debtors as soon as feasible and minimizing the cash payments of current liabilities or short-term obligations. In order to pay off its short-term debts, a company may be obliged to turn to external financing if it is unable to maintain a strong liquidity position".

Adegbie and Adesanmi (2020) declare that the primary objective of liquidity control is to give businesses a safety net in the case of a cash shortage as well as a resource for upcoming acquisitions or capital expenditures. According to Ugwu, Ugwoke, Egbere, Asogwa and Orji (2020), implementing good liquidity management practices can boost a

company's reputation with investors by demonstrating that they are resilient enough to handle any potential kinds of hardship. Corporate liquidity is a company's ability to weather a storm when it has to have the cash and close-by cash equivalents to handle its issues (Onyekwelu, Chukwuani and Onyeka, 2018). It places a strong emphasis on managing current assets, current obligations, and the connections between them. Planning and managing current assets and current liabilities in a way that completely removes the danger of being unable to fulfill short-term obligations is the impact of liquidity management. According to Eze and Agu (2020), a company's liquidity management is said to be at its best if it is founded on the premise of collecting cash from debtors as soon as feasible and minimizing the cash payments of current liabilities or short-term obligations. In order to pay off its short-term debts, a company may be obliged to turn to external financing if it is unable to maintain a strong liquidity position. According to Ugwu et al. (2020), implementing good liquidity management practices can boost a company's reputation with investors by demonstrating that they are resilient enough to handle any potential kinds of hardship. Current ratio, quick ratio, cash ratio, cash conversion cycle, receivables collection period, capital adequacy ratio, loan to deposit ratio, cash reserve ratio and deposit rate have been identified as some of the proxies casually connected to actualize the change in the financial performance of an organization. (Akinleye & Ogunleye, 2019; Adegbe & Adesanmi, 2020; Ajose & Solape 2020)

Current Ratio:

This is a Liquid Asset ratio that assesses a company's capacity to settle short-term debt or debt with a one-year maturity. According to Lalithchandra et al. (2021) cited in Almakura (2020), it is a gauge of how effectively a business pays off its short-term obligations. It shows the number of times a company's short-term obligations can be covered current assets. It can be calculated by dividing current assets by current liabilities. It is also called working capital ratio.

Cash Ratio:

This ratio measures a company's ability to meet its immediate obligations entirely from its cash and cash equivalents. It is a reliable sign of a company's capacity to pay off its short-term debt using cash or liquid resources that can be converted into cash quickly without any significant loss in value, for example, marketable securities. When deciding how much money to lend to struggling companies, creditors give this metric a lot of consideration (Almakura, 2020). This can be calculated by dividing the cash and cash equivalents by current liabilities.

Liquid Asset ratio:

According to Gulde, Nascimento and Zamalloa (1997), a liquid asset requirement, or ratio, is defined as the obligation of commercial banks to maintain a predetermined percentage of total deposits and certain other liabilities in the form of liquid assets. It aims to ensure that banks hold minimum liquid assets as buffer to withstand any surge in operational cash requirements.

EMPIRICAL REVIEW

A vast body of literature exists in this area some of which are reviewed. Almakura (2024) a study into the effect of liquidity management on the financial performance of Nigerian oil and gas firms was conducted. Current Ratio (CUR), Quick Ratio (QUR), Cash Ratio (CAR) and Return on Capital Employed (ROCE) were explored as proxy variables for liquidity management and financial performance, respectively, using an ex-post facto

research approach. The study used a purposive sampling approach to collect secondary data from five Nigerian oil and gas firms' annual financial reports, which spanned the years 2012 through 2021. The data was analysed using descriptive statistics and regression analysis. Results from the analysis revealed that Quick Ratio and Cash Ratio have a positive insignificant impact on Return on Capital Employed while Current Ratio has a negative significant impact on Return on Capital Employed. Based on the findings, it was recommended that managers of oil and gas firms should adopt effective liquidity management policies that guarantee an optimal level of liquidity that improves its profitability and enables them operate with a reasonable margin of safety.

Igwenwanne, Ozurumba, Nwaimo, Anyanwu and Ubah (2023) in examining the effect of liquidity management on banks' performance in Nigeria for the period of ten (10) years (2012-2021) used four proxies for liquidity management (Liquid Asset ratio, cash ratio, efficiency ratio and loan-to-deposit ratio) which were regressed against Tobin's q using Fixed Panel Least Square method in the model estimation. Other preliminary tests carried out include the descriptive statistics test, Levin, Lin and Chu (LLC) unit root and the Hausman Specification tests. The findings of the study indicate that liquidity management and efficiency ratio have a positive and significant relationship with the performance of Deposit Money Banks in Nigeria. On the other hand, the Cash Ratio has a negative and insignificant relationship with the performance of Deposit Money banks in Nigeria. Based on the above findings, the study concludes that there is a significant positive relationship between liquidity management and bank performance in Nigeria and recommends that banks should embrace measures that will make certain or ensure effective liquidity management rather than directing attention, time and resources to the profit maximization concept only.

Again, Mokuolu, Kolapo, and Dada as cited in Idolor and Oluyomi (2023) studied the impact of deposit money banks' management skills in determining how to honour or discharge their maturing obligations to their depositors in light of conflicts with shareholders' expectations that they increase lending to maximize returns on their investments in emerging economies. Three Nigerian Deposit Money Banks were specifically chosen on a cross-sectional basis and subjected to regression analysis utilizing the Pooled Least Square (PLS) method for 11 years (2008-2018). The analysis's findings showed that, aside from the inflation rate, which initially showed a substantial adverse link but eventually exhibited a negligible positive relationship at the fixed effect stage, all explanatory variables had a positive impact on bank performance. F-Test statistics result from the pooled fixed effect revealed that the entire model is statistically significant.

In another study, Okere, Okeke, Echeonwu, Emili, and Rufai (2021) evaluated the effect of liquidity management on the financial performance of quoted deposit money banks in Nigeria. Secondary data were sourced from fifteen (15) banks' corporate annual reports and financial statements for the eleven (11) years from 2007 to 2017. The study was based on the agency theory as its theoretical foundation. Data collected were analysed using both descriptive and inferential statistics. The findings show a strong correlation between liquidity management and the financial success of deposit money banks in Nigeria. It revealed that there was a considerable variation in Deposit Money Bank profitability in Nigeria before and after the introduction of the Treasury Single Account (TSA).

Kehinde and Solape (2021) researched on bank performance and liquidity management, conducted from 2011 to 2020. They examined the effect of liquidity management on the financial performance of Nigeria's deposit money banks. Secondary data from the annual reports of deposit money banks listed on the Nigerian Stock Exchange were used for the study, while financial performance was measured using return on asset, return on equity, and net profit margin. As proxies for managing liquidity, the Liquid Asset ratio, loan-

to-deposit ratio, cash reserve ratio, and deposit rate were employed. The relationship between the variables was determined using the panel least squares regression technique. The results demonstrate that liquidity management affects deposit money institutions' financial performance in Nigeria in a favourable and significant way.

Also, Alhassan and Islam (2021) evaluated link between liquidity and profitability by examining the annual financial reports of ten Nigerian oil and gas companies from 2011-2020. Liquidity variables such as equity, debt, sales and profitability measures such as return on assets, return on equity and profit after tax. Fixed panel regression method was used for analysis and findings revealed that debt has a significant negative impact on companies' profitability while equity has a positive influence on profitability. The study therefore recommended that oil and gas firms should boost their equity capital and retained earnings to enable them generate more wealth for shareholders.

Eze and Agu (2020) in their study "liquidity management and performance of deposit money banks in Nigeria" used six banks with international affiliation. The work seeks to establish the relationship between the variable of bank performance and those of liquidity management using capital adequacy, Liquid Asset ratio, and current ratio as indicators and bank size as a control variable. Data were extracted from annual reports from the banks' websites for a period spanning seven years (2013 – 2019). Descriptive statistics and regression analysis were performed using the E-View 10.0. Findings indicate a strong positive relationship between capital adequacy and return on equity while liquidity and current ratio showed statistical insignificant negative relationship with return on equity. Bank size showed a strong positive relationship with return on equity. It was recommended that the regulatory body should ensure that deposit money banks in Nigeria are adequately capitalised to guarantee system stability while the bank managers should adhere to reserve requirements from the Central Bank so as to absorb financial shocks and operate profitably

In Sathyamoorthi, Mogotsinyana, and Mashoko (2020), the study examined the impact of liquidity management on the financial performance of commercial banks in Botswana. The study used Return on Assets and Return on Equity to measure financial performance. Cash and cash equivalents to total assets ratio, Cash to deposits ratio, Loans to deposits ratio, Loans to total assets ratio, Liquid assets to total assets ratio, and Liquid assets to deposits ratio were used as proxies for liquidity management. The research population was all the 9 commercial banks in Botswana and the study covered a period of 9 years from 2011 to 2019. This descriptive study sourced monthly secondary data from Bank of Botswana Financial Statistics database. Descriptive statistics, correlation and regression analyses were applied for data analysis. Findings from regression analysis show statistically significant positive relationships between Loans and total assets ratio and Liquid assets to total assets ratio with return on assets and return on equity. Loans to deposits ratio and Liquid assets to deposits ratio had statistically significant negative relationships with return on assets and return on equity. Cash and cash equivalents to total assets ratio had statistically insignificant positive relationship with return on assets and return on equity whilst cash to deposits ratio had statistically insignificant negative relationship with return on assets and return on equity. Findings suggest that the commercial banks should try to optimize liquidity variables to boost bank performance. The policy makers also, through the Central Bank, should come up with initiatives such as prescribing minimum liquidity requirements that will help banks to stay profitable.

In the study of Ugwu et al. (2020), the effect of liquidity management on the performance of deposit money banks in Nigeria was examined using annual financial statements from the period 2011-2017. Multiple regression method was used to test the relationship between liquidity management, proxied by capital adequacy ratio, asset quality,

and Liquid Asset ratio and financial performance proxied by return on equity (ROE) and return on asset (ROA). The results show that liquidity management and financial performance have a positive significant association, with the study proposing that banks should place strong emphasis on liquidity management so as to minimize potential default risks.

Adegbie and Adesanmi (2020) in exploring the relationship between liquidity management and corporate sustainability of listed oil and gas firms in Nigeria selected a sample of 10 firms purposively, from which data from its financial statements were analysed using regression technique. Liquidity management was measured by cash ratio, quick ratio, cash conversion cycle, receivables collection period, and payables payment period while sustainability was measured by asset growth, profitability and economic value added. Findings revealed that liquidity management had a positive significant effect on the three measures of corporate sustainability and recommended that shareholders, managers and policy makers, financial regulators and market participants should be mindful of companies' liquidity management and time lag between credit sales and collection of receivables.

Furthermore, Adegbie and Adesanmi (2020) explored the relationship between liquidity management and corporate sustainability of listed oil and gas firms in Nigeria. A sample of 10 firms were purposively selected, from which data from its financial statements were analysed using regression technique. Liquidity management was measured by cash ratio, quick ratio, cash conversion cycle, receivables collection period, and payables payment period while sustainability was measured by asset growth, profitability and economic value added. Findings revealed that liquidity management had a positive significant effect on the three measures of corporate sustainability and recommended that shareholders, managers and policy makers, financial regulators and market participants should be mindful of companies' liquidity management and time lag between credit sales and collection of receivables.

In Wuave, Yua and Yua (2020), the research cited to have been carried out by Terseer et al. (2020) studied the effect of liquidity management on the performance of five commercial banks in Nigeria for the period 2010-2018. Liquidity management was measured by Liquid Asset ratio, cash reserve ratio, loan to deposit ratio, and deposit ratio while performance was measured by return on asset, return on equity, and net interest margin. Secondary data extracted from the annual reports were analysed using panel regression technique. The study concluded that all proxies have a positive significant effect on financial performance.

Dadeipo and Afolabi (2020) examined the impact of liquidity management on financial performance of selected manufacturing firms in the Nigeria. Descriptive, correlation and multiple regression techniques were used to examine panel data acquired from annual reports of 10 representative enterprises for the period 2012-2016. Findings revealed that liquidity management proxied by current ratio, cash ratio, and quick ratio have a significant negative impact on financial performance proxied by return on assets while cash ratio and quick ratio had a positive but insignificant effect.

Otekunrin et al. (2019) looked at the liquidity management and performance of a few Nigerian-listed deposit banks. Out of the 17 deposit money banks on the Nigerian Stock Exchange, secondary data were taken from the financial statements of 15 of them for the years 2012 to 2017 (six years). The ordinary least square approach was used to examine the data collected. The capital ratio (CTR), current ratio (CR), and cash ratio (CSR) were used to monitor liquidity management, while return on assets was used to gauge performance. According to the study's findings, there is a positive correlation between the firm's performance as measured by return on assets and liquidity management as measured by capital ratios, current ratios, and cash ratios. The outcome demonstrates that managing

liquidity is a crucial aspect of corporate operations, which ultimately results in business profitability. Therefore, effective liquidity management aids in resolving the agency theory issue of agency costs that arises when control and ownership of companies are separated, whereby managers can use the resources of the company for personal gain instead of maximizing the value of the company or the wealth of the shareholders.

Salami, Suleiman, Ishola, and Iyanda (2019) used unbalanced panel data from 2010 to 2016 to investigate the association between working capital management and financial returns of nine publicly traded public oil and gas companies in Nigeria. Ex-post facto design was employed for the study. Analysis was done through panel data regression technique. Findings revealed that average collection period and inventory turnover period, and average payment period had a significant negative impact on the two measures of financial returns.

Akinleye and Ogunleye (2019) examined the effect of liquidity on performance of manufacturing firms in Nigeria between 2007 and 2016. Liquidity was measured by quick ratio, current ratio, and cash ratio while performance was measured by profit after tax. The study utilized panel data estimators, panel co-integration and pooled granger causality tests as analytical tools. The results showed that quick ratio and current ratio has a negative and significant impact on firm performance while cash ratio established a significant positive impact and recommended that firms should try to reduce their receivables in order to improve profitability

In Kenya however, Sile, Olweny and Sakwa (2019) conducted a study on liquidity as a determinant of banks financial performance using all the forty-three commercial banks for the study period (2012-2016). The study made use of secondary data collected from audited financial statements of the banks. Descriptive statistics and regression analysis employed showed a negative relationship between financial performance and liquidity management

Charmler, Musah, Akomeah and Gakpetor (2018), studied the level of bank liquidity, the trend of bank liquidity and the impact on the profitability of commercial banks in Ghana. The study involved twenty-one banks for a period of ten years (2007-2016). Secondary data in form of a panel were analysed employing descriptive statistics, correlation and regression analysis. The results showed a positive relationship between returns on assets and liquidity but a weak positive relationship between returns on equity and liquidity. However, a negative relationship was observed between return on equity and liquid assets to total interest-bearing liabilities while bank size, capital adequacy among others showed a positive association.

The effect of liquidity management on the financial performance of deposit money banks in Nigeria was researched by Onyekwelu et al. (2018). The panel data was gathered from the annual reports of 5 sampled banks for the period 2007-2016, and the study employed generalized least square multiple regression to analyse it. Findings revealed that liquid asset to total assets ratio, liquid asset to total deposit ratio and asset quality has a positive significant influence on business performance. It was also suggested that regulatory authorities should put in place appropriate policies with compliance measures to check high volume cash transaction and cash hoarding prevalent in the economy.

Theoretical Review

Several theories of liquidity and liquidity management in banks exist. Some of the theories include Shiftability Theory of Liquidity developed by Harold G, Moulton in 1915, the Liquidity Preference Theory developed by Keynes in 1936, the Liquid Assets Theory put forth by Crick (1927), the Commercial loan theory, the Trade-off Theory and so on. The Trade-off theory is adopted as a relevant guide in this study.

Trade-off Theory

The trade-off Theory posits that there an optimal capital structure for a firm, a point at which it can balance the costs and benefits of different sources of financing (Ghazouani, 2013). This theory equally applies to liquidity management as there is a trade-off exists between liquidity and profitability in all organizations. Applying it to a bank, the two objectives to achieve good profits and maintain liquidity cannot be followed simultaneously without one affecting the other (Akinwumi, Essien & Adegboyega, 2017). This means that banks should aim at maintaining an optimum level of liquidity to balance between the benefit of holding cash in the form of saving transaction cost to raise funds and the cost of holding cash in the form of tax disadvantage and liquidity premium (Edem, 2017). Adegboye (2021) assessed the trade-off of profitability versus liquidity (and vice versa) for five purposively selected commercial banks in Nigeria using Multivariate research design. Regression analysis, Ordinary Least Square, and correlation coefficient approaches were used to apply quantitative methodologies to data collected. Secondary data was gathered from their five-year annual reports, which were published between 2015 and 2019. The Result reveal that there was a statistically perfect correlation (positive and negative) between LA (loans), BA (bank advances), and MDI (marketable debt instruments) against PAT (profit after tax) and ROA (return on assets). The theory is relevant for the study as it examines the relationship between liquidity and performance.

METHODOLOGY

The ex-post facto research methodology was adopted which enabled the researcher to make use of secondary data of listed commercial banks in Nigeria for a thirteen-year period from 2010 to 2022. The study employed secondary panel data (cross sectional data over a period of thirteen years) of sampled commercial banks in Nigeria for the period 2010 to 2022. Data was obtained from audited and published annual reports the nine banks for the period 2010-2022.

Population and sample

The population of study is the total number of listed commercial banks in the Nigeria Stock Exchange (NSE) as at April 2023. There were fourteen (14) listed commercial banks that form the population according to NSE report. These include both the old generation and new generation commercial banks. A sample size of nine banks representing about two-third of the population was purposively selected for analysis to include the top nine (9) highest ranking listed commercial banks which was based on total assets as at last quarter of 2022 as published by Nairametrics @ [www. Nairametrics.com](http://www.Nairametrics.com). These included Access Bank, First Bank of Nigeria, First City Monument Bank, Fidelity Bank, Guaranty Trust bank, StanbicIBTC bank, Sterling Bank, United bank for Africa and Zenith Bank. However, according to Nairametrics, Ecobank was not included in the ranking because of its Pan-African status.

Method of Data Analysis

Data analysis was carried out using SPSS Statistics 20. Pearson Correlation model and Multivariate Analysis of Variance (MANOVA) were used for data analysis at 5% (0.05) level of significance and relevant degrees of freedom.

Model Specification

$$OPM = \lambda_0 + \lambda_{CUR} + \lambda_{CAR} + \lambda_{LAR} + \mu \text{-----}(1)$$

$$EPS = \lambda_0 + \lambda_{CUR} + \lambda_{CAR} + \lambda_{LAR} + \mu \text{-----}(2)$$

Where:

λ_0 = Intercept (constant term). It depicts the level of OPM, EPS at zero.

$\lambda_i (1, 2,)$ = coefficient or of weights of the components of profitability.

OPM = Operating Profit Margin

EPS = Earnings per share

CUR = Current ratio.

CAR = Cash ratio

LAR = Liquid Asset ratio

μ = stochastic variable to accommodate the influence of other variables not included in the model.

Operationalization of Variables

Dependent Variables

Operating Profit Margin (OPM) = $\frac{\text{Net profit before tax}}{\text{Turnover}}$

Earning per share (EPS) = $\frac{\text{Earnings after tax and preferred dividend}}{\text{Number of shares issued}}$

Independent variables

Current Ratio (CUR) = $\frac{\text{Current Assets}}{\text{Current liabilities}}$

Cash Ratio (CAR) = $\frac{\text{Cash and its equivalents}}{\text{Current liabilities}}$

Liquid Asset ratio (LAR) = $\frac{\text{current Assets}}{\text{Total liabilities}}$

Method of Data Analysis

Averaged cross-sectional regression analysis model was adopted using the following methods:

1. **Pearson correlation:** This measures the relationship between two variables, the strength of that relationship as well as the direction. It is considered that Pearson correlation analysis is sufficient to establish the existence and direction of relationship between the research variables in response to the framework of trade-off theory.
2. **MANOVA analysis:** Multivariate Analysis of Variance (MANOVA) was used for analysis of data This choice was informed by its capacity to handle cases where there is more than one independent variable as in this study, time series modelling and finding the cause-and-effect relationship between variables. MANOVA analysis output also includes relevant statistics that enhance further analysis and evaluation. Variables that enter the model OPM, EPS as dependent variable; CUR, CAR and LAR as independent variables respectively. The Bases of evaluation is F-statistics respectively at 0.05 level of significance and relevant degrees of freedom.

Explanatory power of the model, as a measure of goodness of fit, is determined using the coefficient of determination (R-Square and adjusted R-Square). These statistics enhance insight into the extent to which the liquidity relates to profitability in listed commercial banks in Nigeria.

DATA ANALYSIS AND RESULTS

Table 1 -Pearson Correlation analysis summary result

STATISTICS	CURRENT RATIO (CUR)	CASH RATIO (CAR)	LIQUID ASSET RATIO (LAR)
Coefficient			
-OPM	-0.506	-0.271	-0.408
-EPS	-.770	-0.484	-0.538
sig. value			
-OPM	0.077	0.37	0.166
-EPS	0.002	0.094	0.058

Interpretation of result

Pearson Correlation table 1 above shows that OPM and EPS correlate negatively with CUR, CAR and LAR. While other relationships are statistically insignificant, the relationship between EPS and CUR is statistically significant having high negative coefficient (-.770) and P-value of 0.002 at 5% (0.05) level of significance.

Table 2-MANOVA analysis summary result

STATISTICS	CURRENT RATIO (CUR)	CASH RATIO (CAR)	LIQUID ASSET RATIO (LAR)
P-Value/Sig Value			
-OPM	0.145	0.269	0.444
-EPS	0.001	0.011	0.014
F-ratio			
-OPM	2.544	1.389	0.639
-EPS	24.514	10.29	9.328

R Squared = .827 (Adjusted R Squared = .770)

Interpretation of results:

MANOVA analysis showed that EPS significantly relates with CUR, CAR and LAR having $F=24.514$, $p=.001$; $F=10.29$, $p=.011$; $F=9.328$, $p=.014$ respectively. It also revealed that OPM insignificantly associates with CUR, CAR and LAR having $F=2.544$, $p=.145$; $F=1.389$, $p=.269$; $F=0.639$, $p=.444$ respectively all at 5% level of significance. R Squared =.827 and Adjusted R Squared =.770 shows the model is a good fit to explain relationship between liquidity and profitability (financial Performance) in listed commercial banks in Nigeria.

Test of Hypotheses

Decision Rule

Accept Null hypothesis (H₀) if p-value of test statistics is greater than or equal to the alpha at 5% (0.05), otherwise reject H₀ and accept H₁ if p-value of test statistics is less than or equal to 5% (0.05).

1. H₀: Current ratio (CUR) does not have significant relationship with Operating Profit Margin (OPM) of listed commercial banks

2. H0: Cash ratio (CAR) has no significant influence on Operating Profit Margin (OPM) of listed commercial banks
3. H0: Liquid Asset ratio (LAR) does not significantly associate with Operating Profit Margin (OPM) of listed commercial banks
4. H0: Current ratio (CUR) does not have significant relationship with Earnings per share (EPS) of listed commercial banks
5. H0: Cash ratio (CAR) has no significant influence on Earnings per share (EPS) of listed commercial banks
6. H0: Liquid Asset ratio (LAR) does not significantly associate with Earnings per share (EPS) of listed commercial banks

From MANOVA analysis results on table 2 above, null hypotheses 1, 2 and 3 are accepted because OPM associations with CUR, CAR, LAR return P-values 0.145, 0.269, 0.444 respectively which are greater than 0.05 (5%). However, null 4, 5 and 6 are rejected and alternative hypotheses accepted as EPS associations with CUR, CAR, LAR return P-values 0.01, 0.011, 0.014 respectively which are less than 0.05 (5% level of significance).

Summary of Finding

The findings of this study based on analysis conducted are thus summarized:

1. CUR, CAR and LAR have negative but not statistically significant relationship with OPM of listed commercial banks in Nigeria
2. CUR, CAR and LAR have negative and statistically significant relationship with and affect EPS of listed commercial banks in Nigeria

CONCLUSION AND RECOMMENDATIONS

Conclusion

The results of this study have shown that liquidity, as proxied by CUR, CAR and LAR has a negative relationship with profitability (measured by OPM and EPS) of listed commercial banks in Nigeria. This is in support of trade-off theory and in line with the opinion of Akinwumi, Essien & Adegboyega (2017) which states "Applying it to a bank, the two objectives to achieve good profits and maintain liquidity cannot be followed simultaneously without one affecting the other". While the observed relationship is statistically significant for EPS, it is not significant for OPM across all liquidity proxies-CUR, CAR, LAR.

Recommendations

Arising from this study, the following recommendations are advanced:

1. It is recommended that managers of commercial banks should pay attention to EPS ratios in evaluating the trade-off between liquidity and profitability.
2. Liquidity management should include proper planning and forecasting of short-term cash need to avoid excess liquidity which impair the achievement of profit targets (EPS) of commercial banks.

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CORRELATIONS

```
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/MISSING=PAIRWISE.
```

Correlations

		Correlations				
		OPM	EPS	CUR	CAR	LAR
OPM	Pearson Correlation	1	.640*	-.506	-.271	-.408
	Sig. (2-tailed)		.019	.077	.370	.166
	N	13	13	13	13	13
EPS	Pearson Correlation	.640*	1	-.770**	-.484	-.538
	Sig. (2-tailed)	.019		.002	.094	.058
	N	13	13	13	13	13
CUR	Pearson Correlation	-.506	-.770**	1	.807**	.835**
	Sig. (2-tailed)	.077	.002		.001	.000
	N	13	13	13	13	13
CAR	Pearson Correlation	-.271	-.484	.807**	1	.474
	Sig. (2-tailed)	.370	.094	.001		.102
	N	13	13	13	13	13
LAR	Pearson Correlation	-.408	-.538	.835**	.474	1
	Sig. (2-tailed)	.166	.058	.000	.102	
	N	13	13	13	13	13

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

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

```
GLM OPM EPS WITH CUR CAR LAR
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/DESIGN=CUR CAR LAR.
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General Linear Model

Descriptive Statistics

	Mean	Std. Deviation	N
OPM	.3808	.31095	13
EPS	2.3546	1.05370	13

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.085	.373 ^b	2.000	8.000	.700
	Wilks' Lambda	.915	.373 ^b	2.000	8.000	.700
	Hotelling's Trace	.093	.373 ^b	2.000	8.000	.700
	Roy's Largest Root	.093	.373 ^b	2.000	8.000	.700
CUR	Pillai's Trace	.731	10.896 ^b	2.000	8.000	.005
	Wilks' Lambda	.269	10.896 ^b	2.000	8.000	.005
	Hotelling's Trace	2.724	10.896 ^b	2.000	8.000	.005
	Roy's Largest Root	2.724	10.896 ^b	2.000	8.000	.005
CAR	Pillai's Trace	.534	4.588 ^b	2.000	8.000	.047
	Wilks' Lambda	.466	4.588 ^b	2.000	8.000	.047
	Hotelling's Trace	1.147	4.588 ^b	2.000	8.000	.047
	Roy's Largest Root	1.147	4.588 ^b	2.000	8.000	.047
LAR	Pillai's Trace	.510	4.158 ^b	2.000	8.000	.058
	Wilks' Lambda	.490	4.158 ^b	2.000	8.000	.058
	Hotelling's Trace	1.040	4.158 ^b	2.000	8.000	.058
	Roy's Largest Root	1.040	4.158 ^b	2.000	8.000	.058

a. Design: Intercept + CUR + CAR + LAR

b. Exact statistic

Tests of Between-Subjects Effects						
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	OPM	.414 ^a	3	.138	1.662	.244
	EPS	11.023 ^b	3	3.674	14.374	.001
Intercept	OPM	.004	1	.004	.045	.836
	EPS	.213	1	.213	.834	.385
CUR	OPM	.211	1	.211	2.544	.145
	EPS	6.266	1	6.266	24.514	.001
CAR	OPM	.115	1	.115	1.389	.269
	EPS	2.630	1	2.630	10.290	.011
LAR	OPM	.053	1	.053	.639	.444
	EPS	2.384	1	2.384	9.328	.014
Error	OPM	.747	9	.083		
	EPS	2.301	9	.256		
Total	OPM	3.045	13			
	EPS	85.398	13			
Corrected Total	OPM	1.160	12			
	EPS	13.323	12			

a. R Squared = .356 (Adjusted R Squared = .142)

b. R Squared = .827 (Adjusted R Squared = .770)