**3rd Annual International Conference on Accounting Development (ICAD 2026)**
Department of Accounting, Ahmadu Bello University Zaria · 2–4 September 2026

# FIRM FINANCIAL CONDITIONS AND CASH HOLDINGS OF LISTED DEPOSIT MONEY BANKS

**Adze Musa Akudu[1,*], Ahmad Bello[1], Muazu Saidu Badara[1], Mike C. Duru[1]**

[1]*Ahmadu Bello University, Zaria*

**Email:** amakudu@hotmail.com[*], belloma2000@yahoo.com, msbadara@gmail.com, mikeduru@gmail.com

***Corresponding author**: Adze Musa Akudu

**DOI:** https://doi.org/10.67203/sp.ICAD.2026

**ABSTRACT**

*This study assesses the effect of firm financial conditions on cash holdings of deposit money banks quoted at the Nigerian Exchange Group (NG Group) for the period 2008-2024. Secondary data was obtained from a sample of 11 deposit money banks, selected based on the availability annual financial statements out of the population of 26. Firm financial conditions are proxied by financial distress and financial constraints, which are measured using the Altman's Z-score and Whited and Wu model respectively. The data was analyzed using panel regression technique. The findings show that financial distress has significant and positive effect on cash holdings. Similarly, financial constraints also has significant and positive effect on the cash holdings of listed banks in Nigeria. The study therefore recommends that management of the deposit money banks in Nigeria should strengthen their early warning and risk-monitoring systems to detect signs of financial distress as these would enable them maintain optimal cash resources as buffers as well as prevent excessive stockpiling of cash without compromising profitability. Management should also enhance their capital adequacy, earnings retention and operational efficiency to reduce reliance on external financing. The central bank of Nigeria should ensure adequate prudential policies and guidelines to minimize or prevent widespread of financial distress in the banking sector.*

**Keywords:** *cash holdings; cash reserves; financial conditions; financial constraints; financial distress*

## 1. INTRODUCTION

Deposit Money Banks are known to be the major player in the Nigerian financial system, particularly the money market as they perform very important role of intermediation, whereby ensuring mobilization and allocation of funds from the surplus sector to the deficit sector of the Nigerian economy. This intermediation role creates a meeting avenue for lenders and borrowers of funds. Thus, deposit mobilization is one of the most important traditional functions of banks. This enables deposits to be mobilized and channeled towards funding investments and other economic activities in the different sectors of the economy which otherwise would have remained idle and unproductive in the surplus economic unit.

Thus, banks occupy a unique position in every economy as their existence contributes largely to the development process of any developing economies through financial intermediation role (Abid & Lodhi, 2015; Kanayo & Micheal, 2011). According to Soludo (2009), the Nigerian banks account for over 90 percent of assets in the country's financial system and dominate the stock market. Therefore, the banking sector is a function of the size of the economy as it plays a critical role in the economic development of a nation. Thus, a highly liquid banking sector is vital in ensuring and maintain financial system stability and confidence in the economy. Moreover, countries that have sound banking system are likely to experience fast economic growth.

However, the intermediary functions of banks cannot be achieved without adequate cash resources. Thus, Cui et al. (2020) conclude that firms tend to hoard cash instead of depositing to a bank when they perceive that banks are unhealthy. Therefore, to effectively perform intermediation role without any hiccups banks must ensure that liquidity level is strong enough to meet daily activities for the avoidance of sudden banks distress and subsequent banks failure (Olagunju & Isiaka, 2021).This is because banking crisis usually starts with inability of the bank to meet its financial obligations to its stakeholders, as cash in a banking system is liken to blood in the human system, as adequate circulation of this blood in the body means the human system will function well resulting into good health. Ajijola et al (2024) point out that the stability of financial institutions is a cornerstone for sustaining economic

development, particularly in emerging markets like Nigeria. Thus, the viability and financial health of banks can be directly linked to their cash management. Hence the need to ensure that there is availability of funds to meet its financial commitments or maturing obligations at a reasonable cost at all times.

Therefore, cash is a key indicator to measure the financial situation and it facilitates the financing of activities and operations of an enterprise. Therefore, it is uneconomic and financially unreasonable for banks to allow excess idle cash in the vault or excess liquidity. Thus, banks make strategic corporate decisions and set goals which are difficult if not impossible to be achieved without the needed funds. Cash holding as one of these decisions is vital to maintaining corporate liquidity which enables a bank to meet its financial obligations on time and it is crucial and instrumental in ensuring the survival of the bank even when a bad situation strikes its business activities. Cash holdings, also known as cash reserves are the most liquid assets that provide the much needed financial resources to the firm for the financing of its routine operations and investment opportunities. They are the money or money equivalents held by the firm that can be effectively changed into money and serves as important assets which attracts significant attention from other firms, investors, and analysts (Uwgu, 2020; Ogundipe et al., 2012; Subramaniam et al. 2011). Banks hold cash reserves in order to meet the regulatory requirements (mandatory reserves). In addition, banks also maintain reserves to meet future unknown needs for liquidity (Moussa, 2015).

However, banks are confronted with dual obligations of maintaining the optimal liquidity to meet their depositors' demand and maximizing profit to attain their shareholders goal. Thus, cash level decision is a complex task of balancing between corporate liquidity and profitability. While too much cash held rather than investing will affect the profit to be gained by the bank due to investment opportunities that are missed, cash savings on the other hand that is too little can equally affect the degree of bank's corporate liquidity. Meanwhile, during the financial crisis, liquidity in short-term money markets dried up, and banks suffered severe funding problems (Craig & Koepke, 2015). Thus, Cui et al. (2020) conclude that firms tend to hoard cash instead of depositing to a bank when they perceive that banks are unhealthy.

Furthermore, distress in the banking industry occurs when a fairly reasonable proportion of banks in the system are unable to meet their obligations to their customers as well as their owners and the economy (CBN/NDIC, 1996). This situation poses an operational risk which results in deterioration of a firm's performance, posing challenges in raising funds. This by extension threatens stability, solvency and affects the ability of deposit money banks to meet deposit withdrawal of depositors and loan disbursement to applicants. Consequently, the inability of a bank to maintain adequate liquidity or fulfill its short-term obligations creates a liquidity risk.

In Nigeria, the deposit money banks play a vital role in the growth and development of the economy. However, these banks are confronted with the challenges of illiquidity of their assets (loans) and the liquidity of their liabilities (deposits) due to the difficulties experienced by borrowers in repaying loans, resulting in an increase in defaults or non-performing loans and may become insolvent. This is in addition to the collapse of some banks in the recent past, which was attributed to factors such as frauds, corruptions, mismanagement of funds, illiquidity, and gross incompetency of board of directors, bank runs and many other factors (Oagunju & Isiaka, 2021). Similarly, the Nigerian banking system was rocked by a financial crisis in 2008, caused, by the effect of the global financial crisis of 2007 to 2009.

Consequently, many banks in Nigeria suffered huge losses from the global financial crisis and had to be rescued through the injection of capital and liquidity by the Central Bank of Nigeria. However, the monetary policy measures implemented by the CBN had suffered some challenges caused by deterioration in some macroeconomic conditions**.** Ademola et al. (2022) concludes that despite establishing regulatory agencies and monetary policies, Nigeria banking industry has been suffering from liquidity problems for some time now. Consequently, the financial intermediation role of the banks becomes heavily impaired while the macroeconomic activities seriously slow down. And this situation necessitates the challenging task which requires the management of banks in Nigeria to ensure the right level of cash which trades off between profitability, high carrying costs and insufficient cash resources.

Although there are some few existing studies conducted in Nigeria which have explored the effect of firm characteristics like dividend payouts, profitability, financial leverage, firm size, firm growth on cash holdings of firms (Bankole et al. 2018; Nnubia & Ofoegbu, 2019; Nnubia et al. 2021). These firm attributes are considered significant, however, to the best of the researcher's knowledge, no

study focuses on the effect of financial distress or financial constraints on cash holdings of deposit money banks in Nigeria. The choice of these bank-specific attributes as internal determinants of cash holdings in the Nigeria banking sector is grounded in both theoretical and empirical considerations as these factors reflect internal financial conditions and strategic priorities that influence how banks manage liquidity.

## 2. LITERATURE REVIEW

### 2.1 Conceptual Issues

Ogundipe et al. (2012) view cash holding as money or money equivalents that can be effectively changed over into money. Thus, Gill and Shah (2012) and Limanta and Malelak (2015) view cash holding as cash in hand which is readily available and accessible for investment in physical assets and distribution to shareholders of the company as dividends.

According to Platt and Platt (2002) and Myers (1984), the firm's financial conditions encompass its financial health and stability, as well as the firm's ability to finance its operations and investments through internal funds and external sources. It is a firm's ability to generate sufficient cash flows to meet its financial obligations and maintain a stable financial position over time, without excessive reliance on debt or equity financing (Brealey et al, 2027; Lin & Paravisini, 2012; Myers, 1977). Ross et al. (2013) view financial conditions as a firm's ability to meet its financial obligations, which difficulties in doing so could lead to financial distress. Thus, a firm could find itself in financial distress condition where it faces challenges in meeting its financial obligations due to insufficient or lack of funds (Smith & Liou, 2007). A condition of being close to bankruptcy, where firms show signs of deteriorating financial health, such as declining profitability and liquidity (Dichev, 1998). Thus, Wruck (1990) views a firm's financial condition as a state of hardship where a firm's cash flows are insufficient to meet its financial commitments. Similarly, Graham and Harvey (2001) and Fazzari et al (1988) in their view firm financial conditions through the lens of financing constraints, that is, a challenging situation where a firm's decision to embrace and explore investments opportunities is limited by its inability to raise external funds. Thus, firms with better financial conditions (higher internal liquidity) are less constrained, and this afford them the ability to invest in profitable projects as well as maintain financial stability (Whited, 1992; Lamont, 1997). Conversely, Kaplan and Zingales (1997) argue that firms with weaker financial conditions face higher financing constraints, which limit their ability to undertake investment opportunities or achieve growth.

### 2.2 Empirical Review

#### *2.2.1 Financial Distress and Cash Holdings*

Aderin and Amede (2022) studied the ability of cash flow patterns to accurately predict the incidence of financial distress listed firms in Nigeria. A total 490 firm-year observations were sampled comprising non-financial companies listed on the Nigerian Stock Exchange during the period 2011-2017. The study develops some models to capture different variants of the cash flow patterns along with the possibility of the life-cycle effect, which were analysed using a combination of the Generalised Least Squares (GLS) and the Generalised Method of Moments (GMM). And findings from the analysis suggest that cash flow patterns have predictive ability in determining the incidence of financial distress both in the current period and in the immediately prior period. However, this predictive ability does not extend to subsequent prior periods. Furthermore, the life cycle effect significantly affects the pattern of relationship between the cash flow patterns and financial distress prediction. The results of the study may not be relevant to current happenings in the Nigerian economy as the study was carried out some years before the recent global economic crisis, which the current intends to cover, particularly how financial distress affects cash holdings in time of the crisis.

Hadjaat et al. (2021) carry out a study to analyze the effect of financial distress on the cash holding decisions of non-financial firms listed in Indonesia as the largest emerging economy among ASEAN countries. Data was collected based on all firms listed on the Indonesian Stock Exchange during the period 2008–2017, comprising 137 listed non-financial firms. They further divide the sampled firms into two sub-sample business groups namely; affiliated and non-affiliated groups, in

order to establish the difference in the effect of financial distress on cash holding between both groups. Findings from the analysis using the two-step system Generalized Method of Moments (GMM), with Z-score as proxy for financial distress indicate that financial distress has positive and significant impact on cash holdings for all the groups. They therefore point out that firms with lower financial distress have lower cash holdings; while those facing higher financial difficulties tend to save more cash. It was further revealed that financial distress has a positive and significant influence on cash reserves policy for non-affiliated groups. They conclude that non-affiliated groups hold more cash when in financial distress situation, and the amount of cash holdings differ between affiliated and non-affiliated groups. The financial distress used in the study is in line with the one in this current study, however, this current study intends to assess the joint effect of two internal sources of financial difficulties on the firm's cash holdings as well as its exposure to market liquidity situations and economic crises.

Umry and Diantimala (2018) empirically examine the determinants of cash holdings of manufacturing firms listed on Indonesian Stock Exchange during the period 2012-2017. A sample of 636 company-year observations was selected using purposive sampling technique. Results of the multiple linear regression analysis show that a negative and significant relationship exists between debt maturity structure and cash holdings, while probability of financial distress has positive significant impact on cash holdings. They therefore conclude that companies with larger proportion of long-term debt keep lower amount of cash. Furthermore, companies that are financially distressed accumulate higher amount of cash in order to save for unforeseen circumstances and future uncertainties. The period covered in the study is short and lacks currency and therefore may not be relevant to current firm-level financial conditions as they affect the cash holdings of firms in Indonesian.

Kariuki et al. (2015) in their study explore the factors affecting corporate cash holdings of listed manufacturing firms in Kenya. The study adopts a cross-section descriptive survey research design. They employ the stratified random sampling technique to select a sample of 156 firms from the study population of 504 private firms listed in Kenya. The study categorizes firms into 12 different sub-sectors which formed groups or basis of stratification. The survey data on self-reported financial measures was obtained through 156 questionnaires administered to the Chief Finance Officers (CFOs) of the private manufacturing firms. Results of the responses from the returned questionnaire show that there is a negative and insignificant linear relationship between growth opportunities and corporate cash holdings. The findings also indicate that leverage has a significant positive effect on corporate cash holdings in line with the precautionary motive. Similarly, firm size and cash flow variability positively influence corporate cash holdings. Further, the results of the findings show that there is a negative linear relationship between financial distress and cash holdings. They therefore conclude that financial leverage, firm size, likelihood of financial distress and cash flow variability influence corporate cash holdings among private manufacturing firms listed in Kenya. The method employed for collecting data measures individual perception not fact. Thus, the numbers may not reflect the true financial position of the firms. Hence, the findings may not be objective, generalized, verifiable or practically feasible. Furthermore, the cross-section descriptive survey research design adopted is inappropriate for a study that covered only a sector of the economy.

### *2.2.2 Financial Constraints and Cash Holdings*

Bukallska and Maziarczyk (2023) attempt to examine the effect of financial constraints and financial distress on cash holdings, both in normal and crisis times in Poland. Data on the 4,406 firm-year observations of firms listed on the Warsaw Stock Exchange. The source of data was the Notoria Serwis database over the period of 2007- 2020 from the annual reports of listed 435 non-financial firms listed on the WSE, excluding banks and other financial institutions. The study finds that companies in Poland have higher cash holdings during period of crisis than in a normal period. However, firms with financial difficulties (constraints and distress) have lower cash holdings both in normal and crisis times. The study further analyzes the reaction of cash holdings to a combined impact of external and internal financial difficulties. And they conclude that cash holdings have recently increased their meaning as the world faces the situation of constant and increasing uncertainty: still ongoing COVID-19 crisis prolonged with Russian aggression on Ukraine and outburst of inflation. The study is similar to the current study as it evaluates the effect of financial constraints and financial distress on cash holdings

under economic crisis. Meanwhile, the current study intends to additionally explore the effect of market liquidity conditions of cash holdings covering a longer period.

Similarly, Guizani et al. (2023) in their study employ the GMM regression considering a sample of 140 nonfinancial firms drawn from the Saudi stock market over the period 2002-2019 to analyze the impact of economic policy uncertainty and geopolitical risk on corporate cash holding level and speed of adjustment in one of the most important emerging markets in the Middle East and North Africa, Saudi Arabia. They also study whether Sariah- compliance as well as financial constraints influence the joint effect of economic policy uncertainty and geopolitical risk on corporate cash holdings. Findings from the study show that companies are facing costly external financing situations induced by economic policy-related uncertainty and geopolitical tension and consequently, firms listed in Saudi tend to hold cash as a buffer to hedge against negative shocks to their cash flows. The results also indicate that the positive effect of economic policy uncertainty and geopolitical risk on the level of cash holding is less pronounced in Shariah-compliant firms, where as it is more pronounced in more financially constrained firms. Furthermore, the findings also reveal that the estimated adjustment coefficients suggest that Saudi firms adjust their target cash reserve ratio more quickly during periods of high economic instability and geopolitical risks. The study is cross-continental and therefore its results and findings can be generalized as it covers more than a region of the world.

Eskandan and Zamanian (2022) attempt to provide new evidence on the linkage between cost of carry and corporate cash decisions of firms in the presence of financial frictions. Using both time-series and firm-level data for US public and private manufacturing firms, they find that cash holding cost is negatively related to cash holdings of the financially unconstrained firms. However, such a relationship does not exist for financially constrained firms. They conclude based on the findings that financial constraints play a vital role in causing cash to adjust to changes in the cost of carry. Furthermore, firms differ in their cost function of external finance, where the constrained firms' highly curved cost function drives a steeper cash demand, leading to their lower cash sensitivity to the cost of carry. The study fails to state the sample size of the industry to enable the reader ascertain whether the public and private manufacturing firms in the US was adequately represented during the period of study.

Similarly, Habib et al. (2021) conduct a study to evaluate the determinants of cash holdings of 3156 manufacturing firms listed on the Shehzian Stock Exchange (SSE) for the period 2009–2019. The study obtains the finance-related data from the Chinese Stock Market and Accounting Research (CSMAR). And findings from the analysis indicate that financial constraints encompass firm-level fundamental, macro-economic, and corporate governance variables, with an overwhelming majority of studies using the investment-cash flow sensitivity model for measuring financial constraints. They further point out that financial constraints results in higher cash holdings, less asymmetric cost behaviour and fewer innovations. Also, financially constrained firms use income-increasing accruals more aggressively than unconstrained firms do. The study further reports that financially constrained firms avoid taxes in order to produce temporary cash tax savings. The study fails to explain the implications of the macro-economic and corporate governance factors on **c**ash holdings of the firms to provide insight that could guide cash holdings decisions by the firms.

Tekin (2020) also investigates the impact of global financial crisis, financial constraints and governance on optimal cash holding decisions, using a sample of 14,885 firms selected from 11 countries, selected based on their ownership structures at country-level: France, Germany, Netherlands and Turkey; India, Indonesia, Italy, Japan and Korea; and the UK and the US chosen as concentrated-ownership, family-ownership and dispersed-ownership, respectively. Data was collected for the sample firms from Worldscope in Datastream for the period 2001-2015. Empirical results reveal that financially constrained firms demonstrate a faster cash adjustment than unconstrained firms as confirmed by precautionary motive. However, contrary to the agency motive, the findings show that companies in weak-governed countries have a slower cash adjustment than those from well-governed countries before the global financial crisis. The study further reports that they increase their cash adjustments, whereas those in well-governed countries decrease their cash adjustments as supported by agency motive. The study therefore concludes that on the overall, optimal cash holding policies differ in response to the global financial crisis across financial constraints and governance. The study classifies dividend nonpayers as financially constrained firms and dividend payers as unconstrained firms. This categorization is not enough yardstick because a firm is financially constrained when it is unable to access external funds to finance its activities, operation and investment opportunities as opposed to the

inability to pay dividends. Rather, a financially distressed firm is one that is unable to meet its obligations, which include payment dividends.

In a related study, Granzotto et al. (2019) attempt to verify whether the most financially restricted firms use their cash flow for investment purposes or for cash holdings. And therefore, given its classification in restricted and unrestricted companies, the study employs the threshold method to analyze the cash flow sensitivity of investment as well as the cash flow sensitivity of cash for companies publicly listed in Brazil. From the findings using Z-score and KZ-index, the result of the analysis was not clear in relation to which behavior is predominant in firms in Brazil. Using the total asset as a threshold, the model that was most representative was the one referring to investments in capital goods. But, considering the Z-score as a threshold, the most representative model indicates that Brazilian companies use more cash flow results for cash holdings, while dividends and KZ-index were not significant in the analysis. The financial conditions variables studied in the study are in consonance with those in this current study, however, this current study intends to assess the influence of stock market liquidity and other macroeconomic conditions on cash holdings.

Rashid and Ashfaq (2017) investigate to determine whether the sensitivity of cash to firm-specific factors differs across financially constrained and unconstrained firms. The study considers firm-year observations as financially constrained and unconstrained based on the median value of three alternative measures: the firm size, dividend payout ratio, and Whited and Wu (WW) index. The study further applies the robust two-step system-GMM estimator on unbalanced annual panel dataset covering the period 2001–2013 in order to mitigate the problem of endogeneity and to take into account the dynamic nature of the panel dataset. The findings from the study indicate that cash holdings decrease with size, financial leverage, and the payout ratio of financially constrained firms, while their cash savings increase with both the market- to-book value and the cash flow volatility. However, they find that a positive relationship exists between cash holdings and firm size, payout ratio, and the market-to-book value, while both the cash flow volatility and leverage are negatively correlated with cash holdings in financially unconstrained firms. They therefore conclude that asymmetries in the sensitivity of cash to firm-specific factors are robust across all the three measures of financial constraints used in the study. The firm size employed as a measure of financial constraints in the study may not precisely capture the true financial health of the firms as larger firms may still face financial constraints due to poor management, while smaller firms could still have strong internal cash flows despite their size.

Darkhor and Nahandi (2012) undertake a study to investigate relationship between financial constraints, cash value and investment. The study employs a sample consisting of 86 firms listed on Tehran Stock Exchange during the period of 2006 - 2010. Three WW, KZ and KZIR indices are used for determining the financial constraints of the firms. Results from the findings indicate that holding optimal level of cash is very important for firms and cash increases firms' value in financially constrained more than unconstrained firms. The findings further show that cash and investment are positively correlated. Also, it suggests that companies are always seeking to maximize their profit and return on investments. They further conclude that changes in the level of cash holdings may improve firm`s return and performance and thus result in high return on investment of financially constrained firms more than unconstrained firms. The use of various measures of financial constraints in the study allows for a nuanced understanding of the effect of financial constraints on the firms' cash holdings which gives a holistic view for better decisions by the stakeholders. However, the period covered is not adequate for adjustment and ability to identify trends, as the effect of financial constraints on a firm's cash holdings and its overall financial strategy may take time to become evident.

## 2.3 Theoretical Review

This study is anchored on the trade-off model is attributed to Myers (1977) and the financial hierarchy (or pecking order) model originally developed and introduced by Donaldson (1961). The trade-off model postulates that firms identify their optimal level of cash holdings by weighting the marginal costs and marginal benefits of holding cash. The benefits related to cash holdings are the following: reduces the likelihood of financial distress, allows the pursuance of investment policy when financial constraints are met, and minimizes the costs of raising external funds or liquidating existing assets (Levasseur, 1979). This is also consistent with the view expressed by Ferreira and Vilela (2004)

that cash holding of companies can reduce the likelihood of financial distress due to unexpected losses. This theory clearly addresses how financial distress affects the level of cash holdings of the firm.

Similarly, the financial hierarchy (or pecking order) suggests that firms prefer internal financing over external financing and follow a hierarchy when choosing funding sources. When facing financial constraints, firms rely on more internal funds, including cash reserves, to finance their investment opportunities, operations, meet financial obligations and avoid bankruptcy (Myers & Majluf, 1984). This theory further postulates that firms do not have target cash levels, but cash is used as a buffer between retained earnings and investment needs. When external financing is costly or unavailable, firms may increase their cash holdings to maintain financial flexibility and avoid cost associated with financial distress (Jesen & Meckling, 1976). Thus, this theory to explain the effect of financial constraints on cash holdings of the firm,

## 3.1 Methodology

The ex-post facto (after-the-fact) research design was adopted as the paper attempts to investigate the effect of explanatory variables on a dependent variable. A sample of 11 banks was selected on the basis of availability of data through the use of convenience sampling method. Secondary data was used and the data on the explanatory and dependent variable was sourced for from the annual reports of the selected deposit money banks quoted in Nigeria from 2008 -2024 respectively. The panel regression technique was employed in analyzing the data obtained. The study performed normality test, heteroskedasticity test, and multicollinearity test using variance inflation factor and tolerance value to improve the validity and reliability of the statistical inferences from the results. In addition, the Hausman specification test, Langrangian multiplier effect test, and fixed and random effect tests were also conducted.

The following model was employed in testing the research hypotheses formulated for the study and the model is specified based on empirical framework using the variables to be studied as explained:

$CASHOL_{it} = \beta_0 + \beta_1 FDTRES_{it} + \beta_2 FCONST_{it} + \beta_3 PROFIT_{it} + \beta_4 BKSIZE_{it} + \varepsilon_{it}$ ……i

CASHOL= Cash holdings, measured as cash and cash equivalents divide by total assets (Ferreira et al. (2004; Arfan et al. (2017).

FDTRES= Financial distress, measured using the Altman's Z-score (Hadjaat et al. 2021; Bukallska & Maziarczyk, 2023)

FCONST= Financial constraints, measured using the Whited and Wu (WW) Index (Rashid and Ashfaq (2017; Darkhor and Nahandi (2012).

PROFIT= Profitability, measured as earnings after tax divided by total number of ordinary shares (Azeem & Kouser (2011), Arfan et al. (2017)

BKSIZE= Bank size, measured as the natural logarithm of the book value of total assets at the beginning of the period (Ki & Adhikari, 2022; Li et al., 2023)

$\varepsilon$ = Error term

$\beta_0$ = intercept

$_i$=period i

$_t$ = time t

$\beta_1$, $\beta_2$, $\beta_3$, and $\beta_4$= the various slope coefficients of the explanatory variables.

## 4.1 Results and Discussion

Table 1
Descriptive Statistics

| Variables | Mean | Std. Dev. | Min. | Max. | Skew. | Kurt. | Obs. |
|---|---|---|---|---|---|---|---|
| CASHOL | 4.779 | 2.771 | 0.110 | 9.950 | 0.339 | 0.000 | 187 |
| FDTRES | 2.132 | 0.408 | 1.519 | 3.107 | 0.000 | 0.007 | 187 |
| FCONST | 3.891 | 1.760 | 1.010 | 8.530 | 0.017 | 0.002 | 187 |
| PROFIT | 0.085 | 0.068 | -0.036 | 0.187 | 0.002 | 0.005 | 187 |
| BKSIZE | 0.112 | 0.053 | 0.016 | 0.271 | 0.123 | 0.455 | 187 |

Source: Extracted from STATA Output, 2025

As depicted from Table 1, the mean of cash holdings is 4.779, this suggests that on average, the deposit money banks maintained moderate levels of cash resources, suggesting a cash reserves position that may reflect liquidity management practices of balancing profitability and solvency. The standard deviation of 2.771 suggests a relatively low variation in the cash holdings among the deposit money banks. However, the minimum cash holdings value is 0.110 and the maximum is 9.950 respectively. This thus suggests that there were high disparities and spread in the way banks exhibited their cash holding behaviours during the studied period, implying that some held low cash reserves, while others held significantly higher amounts. The positive Skewness value of 0.338 is an indication that the cash holdings is positively skewed which implies that it does not conform to the symmetrical distribution criterion which suggests a value of zero**.** The coefficient value of 0.000 for the kurtosis indicates that the variable does not meet the Gaussian distribution requirement for a normal data which suggests a value of 3 for kurtosis.

The mean of financial distress of 2.132 indicates that on average, deposit money banks in Nigeria had experienced a moderate level of financial distress during the period under consideration. This suggests that while the sector as a whole may not be in critical condition, some banks faced noticeable signs of financial strain, likely caused by liquidity pressures, declining profitability or asset quality issues. The standard deviation of 0.408 is low relative to the mean. This suggests that there a moderate dispersion in the financial distress situations experienced by the banks in their ability to meet their financial obligations. Furthermore, the minimum financial distress is 1.519 and maximum is 3.107 indicates a relatively wide range between the lowest and the highest, implying that the financial distress eves vary across banks, as some of the banks were financially distressed while some were not distressed during the period. The positive coefficient of skewness of 0.000 indicates that the data is normally distributed and thus meets the condition of symmetrical distribution. Meanwhile, the positive coefficient kurtosis value of 0.007 reveals that the variable does not meet the requirement of Gaussian distribution. This implies that the data is not normally distributed.

The mean and standard deviation of financial constraints is 3.891 and 1.760 respectively. The mean of 3.891 is relatively high, suggesting that the listed deposit money banks had experienced financial constraints during the period under consideration. This may be due to the challenges encountered in raising external fund caused by the global economic and financial crisis. The standard deviation of 1.760 is low compared to the mean financial constraints. This indicates a low dispersion, implying that the banks did not experience large differences in their financial constraint situations. The minimum financial constraints is 1.010 and maximum is 8.530, indicating that the financial constraints of the deposit money banks indicate consistent financial difficulties over the period under review, as some banks experienced higher financial constraints situations than others. Also as depicted from Table 4.1, the coefficient of skewness of 0.017 indicates that the data is normally distributed and therefore meets the criterion of the symmetrical distribution of normal data. Furthermore, the coefficient of kurtosis of 0.002 shows that the variable does not meet the Gaussian distribution for a normal data.

Table 2

Correlation Matrix Results

| **Variables** | CASHOL | FDTRES | FCONST | PROFIT | BKSIZE |
|---|---|---|---|---|---|
| CASHOL | 1.0000 | | | | |
| FDTRES | 0.3098 | 1.0000 | | | |
| FCONST | -0.3516 | -0.0001 | 1.0000 | | |
| PROFIT | -0.1619 | -0.0913 | -0.0789 | 1.0000 | |
| BKSIZE | 0.3005 | -0.0328 | 0.3481 | 0.0424 | 1.0000 |

Source: Extracted from STATA Output, 2025

Table 2 shows that correlation coefficient of 0.3098 between cash holdings and financial distress, which implies that financial distress is positively correlated with cash holdings. This indicates that the relationship between cash holdings and financial distress is positive, signifying that they move in the same direction. However, the association between cash holdings and financial constraints shows a coefficient of -0.3516, indicating that they are strongly and positively correlated. This further implies that as an increase in financial constraints causes a decrease in cash holdings. Similarly, correlation coefficient of -0.1619 between cash holdings and profitability indicates a negative relationship, implying that an increase in profitability results in a decrease in cash holdings. Conversely, correlation

coefficient of 0.3005 between cash holdings and bank size shows that a strong positive relationship exists between the two variables, implying they move in the same direction.

Table 3
Robustness Regression Result

| Variables | Coefficients | P-values | Tolerance | VIF |
|---|---|---|---|---|
| FDTRES | 2.0664 | 0.000 | 0.872 | 1.15 |
| FCONST | 0.4751 | 0.001 | 0.873 | 1.14 |
| PROFIT | 0.2217 | 0.970 | 0.995 | 1.01 |
| BKSIZE | 9.1032 | 0.016 | 0.997 | 1.00 |
| Constant | -2.5156 | 0.003 | | |
| $R^2$ | | 0.2399 | | |
| Adj. $R^2$ | | 0.2232 | | |
| F-Stat | | 15.98 | | |
| Prob>F | | 0.0000 | | |

Source: Extracted from STATA Output, 2025

Based on the outcome of the regression results, a robustness test was finally carried out for analysis and drawing of logical inferences on the data obtained on the explanatory variables from the annual reports of the quoted deposit taking banks in Nigeria and for the test of the formulated hypotheses. Therefore, the discussion will be based on the regression results of the robustness results as depicted in Table 3.

As shown in Table 3, the value of the coefficient of determination ($R^2$) of 0.2399 indicates that financial distress, financial constraints, profitability and banks size explain only 23.99% of the variations in the cash holding behaviours of deposit money banks in Nigeria during the period under review. This suggests that other factors determining the financial performance not considered in this study contribute 76.01%. Similarly, the adjusted $R^2$ of 0.2232 implies that after adjusting for the number of observations, only 22.32% of the variations in the cash holdings are explained by financial distress, financial constraints, profitability and banks size. The F-Stat of 15.98 and Prob>F of 0.0000 show that the model is fit.

From Table 3, the coefficient for financial distress of 2.066 indicates a positive correlation between financial distress and cash holdings. This shows that the level of cash holdings of the deposit money banks in Nigeria is positively affected by the financial distress of the banks. Similarly, the p-value of 0.000 implies that the relationship is significant at 1% significance level. This implies that changes in financial distress meaningfully affect the liquidity management of banks in the form of cash holdings. This implies that the higher the likelihood of financial distress, the higher the amount of cash reserves maintained by the banks. Thus, banks that experience or anticipate financial distress tend to hold higher amount of cash as a precautionary measure against insolvency, liquidity risks, nonperforming loans as well as to meet deposit withdrawals by customers. This finding is in line with the claim of the trade-off theory which contends that during financial distress situation, firms may prioritize preserving more cash to avoid defaulting on debt obligations of facing costly financial restricting as the frequent deployment of external source of fund (debt) in funding the firm's activities and operations might expose the firm to the likelihood of financial distress, especially when it becomes difficulty for the firm to meet recurring financial obligations. The result of this study is in consonance with the findings of Hajaat et al (2021 and Umry and Diantimala (2018) where the results indicated that financial distress significantly and positively influenced cash holdings, but not consistent with the study by Kariuki et al (2015), which found otherwise. We can deduce that the banks facing high financial distress situation are likely to have high level of cash reserves as precautionary measures against liquidity risks, while those with low degree of financial distress are likely to preserve low cash reserves.

Furthermore, the coefficient value for the financial constraints of 0.475 shows that there is a positive relationship between financial constraints and cash holdings. The p-value of 0.000 further indicates that the relationship is significant at 1% level, implying that financial constraints positively and significantly influence the cash holdings of listed deposit money banks in Nigeria. The positive relationship therefore suggests that the higher the financial constraints of the banks, the higher the cash

holdings and vice versa. It can therefore be deduced that when banks experience higher financial constraint situations such as limited access to external funding, tighter credit condition or high borrowing costs, perhaps due to low credit ratings, regulatory restrictions or adverse market conditions, they tend to self-insure by preserving more cash resources internally as a precautionary measure to mitigate against unexpected financing needs, avoid dependence on costly external funding and liquidity risk arising from limited access to external funding. The finding supports the pecking order theory claims that firms prefer to use more of the internal capital - cash reserves to invest in order to minimize costs because of decreasing asymmetric information. Thus, financially constrained firms maintain higher cash reserves to safeguard potential liquidity challenges and shortages as well as market liquidity shocks. The result of the study is in consonance with findings by Eskandan and Zamanian (2022) and Habib et al (2021), but contradicts the finding of Bukallska and Maziarczyk (2023) who found a negative and insignificant relationship between financial constraint and cash holdings.

## 5.1 Conclusion and Recommendations

The paper assessed the influence of firm financial conditions – financial distress and financial constraints on the cash holdings of deposit taking banks quoted on the Nigerian Exchange Group over the period (2008-2024). Arising from the findings, the study concludes that deposit money banks facing high financial distress situation are likely to have high level of cash resources as precautionary measures against liquidity risks, while those with low degree of financial distress are likely to preserve low cash reserves. Similarly, deposit money banks maintain high cash holdings to guard against the difficulties and challenges of raising external funds required for their activities. The study recommends that management of the banks should strengthen their early warning and risk-monitoring systems to detect signs of financial distress as these would enable them maintain optimal cash resources as buffers as well as prevent excessive stockpiling of cash without compromising profitability. The Central Band of Nigeria as the regulator should ensure adequate prudential policies and guidelines to minimize or prevent widespread of financial distress in the banking sector. The management of the deposit money banks should enhance their capital adequacy, earnings retention and operational efficiency to reduce reliance on external financing. Furthermore, managers of banks should adopt efficient market planning and diversification strategies to reduce reliance on cash reserves as the main means of managing liquidity needs and pressures. On the other hand, the regulators of the financial market should promote credit market stability, enhance interbank market efficiency and financial market development that would improve access to external financing.

## REFERENCES

Abid, F. & Lodhi, S. (2015), Impact of changes in reserve requirement on banks profitability: A case of commercial banks in Pakistan. *European Journal of Business and Management, 7(31), 1-30.*

Ademola, A.O, Ajayi, E.O. & Kolawole, A.A. (2022). Monetary policy and performance of deposit money banks in Nigeria. *Intelligent Systems in Accounting, Finance and Management, 14 (1), 148-161.*

Aderin, A. & Amede, O. (2022). Cash flow patterns and financial distress prediction. *Journal of Accounting and Management, 12 (1), 45-56.*

Ajijola, L.A., Ajape, M.K., Fa-Yusuf, H.S. & Oyelade, O.D. (2024). An analysis of potential financial distress of selected Nigerian banks using Altman Z-score model. Lagos Journal of Banking, Finance and Economic Issues, 5(1), 134-145.

Arfan, M., Basri, H., Risma, H., Majid, M.S.M, Heru, F. & Azimah, D. (2017). Determinants of cash holdings of listed manufacturing companies in the Indonesian Stock Exchange. *DLSU Business & Economics Review, 26 (2), 1-12.*

Arslan, O., Florackis, C. & Ozkan, A. (2006). The role of cash holdings in reducing investment-cash flow sensitivity: Evidence from a financial crisis period in an emerging market. *Emerging Markets Review, 7 (4), 320-338.*

Azmat, Q. & Iqbal, A.M. (2017). The role of financial constraints on precautionary cash holdings: Evidence from Pakistan. *Economic Research-Ekonomska Istraživanja, 30 (1), 596-610*

Bankole, K.O., Eyide, M.U. & McDubus, O.F. (2018). The rationale for entity cash management: An empirical study. *International Journal of Research in Business Studies and Management, 5 (7), 16-22.*

Brealey, R.A., Myers, S.C. & Allen, F. (2011). Principles of Corporate Finance. McGraw-Hill.

Bukalsaka, E. & Maziarczyk, A. (2023). Impact of financial constraints and financial distress on cash holdings. *International Journal of Management and Economics, 59 (1), 13-31.*

CBN/NDIC (1996). Distress in the Nigerian Financial Services Industry. A CBN/NDIC Collaborative Study, Lagos.

Craig, B.R. & Koepke, M. (2015). Excess reserves: Oceans of cash. Economic Commentary, Federal Reserve Bank of Cleveland.

Cui, W., Cuong, L.K. & Shimizu, K. (2020). Cash policy and the bank-firm relationship. *Economic Modelling, 19, 804-818.*

Darkhor, S. & Nahandi, Y.B. (2012). Financial constraint, cash value and investment. *African Journal of Business Management, 6 (26), 7769-7778.* Available online at http://www.academicjournals.org/AJBM

Dichev, I.D. (1998). Is the risk of bankruptcy a systematic risk? *The Journal of Finance, 53 (3), 1131-1147.*

Donaldson, G. (1961). Corporate debt capacity: A study of corporate debt policy and the determination of corporate debt capacity. Boston

Eskanari, R. & Zamanian, M. (2022). Cost of carry, financial constraints and dynamics of corporate cash holdings. Journal of Corporate Finance, 7 (4), 34-45. Ezenwafor, J.N.,

Fazzari, S. M., Hubbard, R. G. & Petersen, B. C. (1988). Financing constraints and corporate investment. *Brookings Papers on Economic Activity, 1, 141–195.*

Ferreira, M. A., & Vilela, A. S. (2004). Why do firms hold cash? Evidence from EMU countries. *European Financial Management, 10 (2), 295–319.*

Gill, A. & Shah, C. (2012). Determinants of corporate cash holdings: Evidence from Canada. *International Journal of Economics and Finance, 4(1), 235-244.*

Graham, J.R. & Harvey, C.R. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics, 60 (2-3), 187-243.*

Granzotto, A., Lamberti, F.A. & Sonza, I.B. (2019). Do financial restricted companies use the cash flow for investment or cash holdings? *Entoque: Reflexao Contabil, 39 (3), 69-86*

Guizani, M., Talbi, D. & Abdalkrim, G. (2023). Economic policy uncertainty, geopolitical risk and cash holdings: evidence from Saudi Arabia. *Arab Gulf Journal of Scientific Research, 41 2), 183-201.*

Habib, A., Costa, M.D. & Jing Jia, J. (2021). Determinants and consequences of financial constraints: A review of the empirical literature. *China Accounting and Finance Review, 23 (3), 78-126.*

Hadjaat1, M., Yudaruddin, R. & Riadi. S.S. (2021). The Impact of Financial Distress on Cash Holdings in Indonesia: Does Business Group Affiliation Matter? *Journal of Asian Finance, Economics and Business, 8 (3), 373-381.*

Jensen, M.C & Meckling, W.H (1976). Theory of the firm: managerial behaviour, agency costs and ownership structure. *J Financ Econ, 3, 305-360.*

Jensen, M.C. (1986). Agency cost of free cash flow, corporate finance and takeovers. *American Economic Review, 76, 323-329.*

Kanayo, A. & Michael, F. (2025). Reforming the African financial architecture: The role of the Alliance of African Multilateral Financial Institutions in Global Finance. The African Export-Import Bank Contemporary Issues in Africa.

Kaplan, S. N. & Zingales, L. (1997). Do investment-cash flow sensitivities provide useful measures of financing constraints? *Quarterly Journal of Economics, 112 (1), 169–215.*

Kariuki, S. N., Namusonge, G. S., & Orwa, G. O. (2015). Determinants of corporate cash holdings: Evidence from private manufacturing firms in Kenya. *International Journal of Advanced Research in Management and Social Sciences, 4 (6), 15-33.*

Ki, Y. & Adhikari, R. (2022). Corporate cash holdings and exposure to macroeconomic conditions. *International Journal of Finance Studies, 10, 105*

Lamont, O. (1997). Cash flow and investment: Evidence from internal capital market. *The Journal of Finance, 52 (1), 83-109.*

Lamont, O., Polk, C. & Saa-Requejo, J. (2001). Financial constraints and stock returns. *The review of financial studies, 14 (2), 529-554.*

Levasseur, M. (1979). Gestion de tresorerie, Economica

Li, X., Li, X., Cheng, J., Li, J. & Zhao, Z. (2023). The influence of institutional fragility on corporate cash holdings: Evidence from China. *Economic Research-Ekonomska Istraživanja, 36 (1), 191-208*, https://doi.org/10.1080/1331677X.2022.2073249

Limanta, V. N. & Malelak, M. I. (2015). Factors affecting corporate cash holding of financial sector companies (non-bank) listed in Indonesian Stock Exchange Period. *International Conference on Management & Entrepreneurship,* 1, 1-10. http://repository.petra.ac.id/17831/

Lin, H. & Paravisini, D. (2012). The effect of financing constraints on risk. *Review of Finance, 17 (1), 229-259. http://doi..org/10.1093/rof/rfr38*

Martinez-Sola, C., Garcia-Teruel, P. J. & Martinez-Solano, P. (2018). Cash Holdings in SMEs: speed of adjustment, growth and financing. *Small Business Economics, 1-20.*

Moussa, M.A.B. (2015). The determinants of banks liquidity: Case of Tunisia. International *Journal of Economics and Financial Issues, 5 (91), 249-259*.

Myers, S.C. (1977). Determinants of corporate borrowing, *Journal of Financial Economics, 5 (2), 147-175.*

Ndugbu, M.O. (2013). Theories, policies and institutions of money and banking. Uzopietro Publishers, Owerri, Nigeria.

Nnubia, I.C. & Ofoegbu, G. N. (2019). Effect of Profitability on Cash Holdings of Quoted Consumer Goods Companies in Nigeria. *International Journal of Research and Innovation in Applied Science (IJRIAS) 4 (9), 78-85.*

Ogundipe, L. O., Ogundipe, S. E., & Ajao, S. K. (2012). Cash holding and firm characteristics: evidence from Nigerian emerging market. *Journal of Business, Economics & Finance, 1(2), 23-36.*

Okegbe, T.O. & Nwoye, U.J. (2021). Commercial banks' cash holdings behavior in pre- and post-economic recession periods in Nigeria. X-raying the determinants. Journal of Global Accounting, 7 (1), 14-27.

Olagunju, I. L., & Isiaka, N. A. (2021). The economic implication of cash reserve requirement on the profitability of deposit money banks in Nigeria. *Cross-Cultural Communication, 17 (1), 38-47.*

Platt, H.D. & Platt, M.B. (2002). Predicting corporate financial distress: Reflections on choice-based sample bias. *Journal of Economics and Finance, 26 (2), 184-199*.

Rashid, A. & Ashfaq, M. (2017). Financial constraints and corporate cash holdings: A empirical analysis using firm level data. *Annals of Financial Economics, 12 (2), 1-26.*

Ross, S.A., Dahawy, K., Hussainy, K. & Stapleton, P. (2005). Corporate Finance. McGraw-Hill/Irwin, New York.

Ross, S.A., Westerfield, R.W. & Jaffe, J. (2013. Corporate Finance. McGraw-Hill, New York.

Smith, M. & Liou, D. (2007). Industrial sector and financial distress. *Managerial Auditing Journal, 22 (4), 376-391.*

Soludo, C.C. (2009). Global financial and economic crisis. How vulnerable is Nigeria? Presentation by Professor Charles Chukwuma Soludo, the Governor of the Central Bank of Nigeria to the House of Representatives Committee on Banking and Currency n January21, 2009.

Subramaniam, V., Tang, T. T., Yue, H., & Zhou, X. (2011). Firm structure and corporate cash holding. *Journal of Corporate Finance, 17, 759–773.*

Tekin, H. (2020). How optimal cash changed by the global financial crisis? A multi-country analysis. *Economics and Business Letters, 9 (2), 114-123.*

Ugwu. I.V. (2020). Diverse Ownership Structure and its implications on firms' cash holding- evidence from listed consumer goods from Nigeria Stock Exchange NSE. *IDOSR Journal of Arts and Management 5 (1), 70-85.*

Umry, M.A. & Diantimala, Y. (2018). The determinants of cash holdings; Evidence from listed manufacturing companies in Indonesia. *Journal of Accounting, Finance and Auditing Studies, 4 (4), 173-184.*

Whited, T.M. (1992). Debt, liquidity constraints, and corporate investment: Evidence from panel data. *The Journal of finance, 47 (4), 1425–1460.*

Wruck, K.H. (1990). Financial distress, reorganization and organizational efficiency. *Journal of Financial Economics, 27 (2), 419-44*