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CORPORATE CASH HOLDINGS IN THE NIGERIAN CAPITAL MARKET: AN ANALYSIS OF FINANCIALLY CONSTRAINED AND NON-FINANCIALLY CONSTRAINED COMPANIES

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Abstract

The purpose of this study is to determine the factors that influence the corporate cash holdings of companies listed on the Nigerian Stock Exchange (NSE) between 2005 and 2019 using a static and dynamic panel regression technique. Although a variety of factors have been studied in the past, it is unclear whether factors affecting companies that are financially constrained differ from non-financially constrained companies. The findings demonstrated that cash flow, company size, and growth opportunities are significant determinants of corporate cash holdings. In particular, the trade-off theory supports a negative association between cash flow and corporate cash holdings, but the pecking order theory supports a positive association between company size and corporate cash holdings. Growth opportunities, on the other hand, is consistent with free cash flow theory and has a negative relationship with corporate cash holdings.

Keywords: *Cash holdings, financial constraints, Growth opportunities, Nigeria*

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INTRODUCTION

Cash is the most liquid asset on the current assets of a company's balance sheet, and it is more often than not regarded as the backbone of a company's sustenance and a proxy for its liquidity management (Gill & Shah, 2012; Rashid & Ashfaq, 2017; Subramaniam, Tang, Yue, & Zhou, 2011). The amount of cash held by the company is understood as cash and cash equivalents, such as bank deposits and short-term securities, which can be quickly converted into money (Duchin, 2010; Gill & Shah, 2012). Across the globe, corporate cash holdings have been increasing considerably (Amess, Banerji, & Lampousis, 2015). For instance, Macmillan, Prakash, and Shoult (2014) reported that in 2013, the top 1,000 non-financial publicly listed companies retained $3.53 trillion in cash holdings worldwide. Obiols (2018) revealed that non-financial companies in the United States (US) had cash in the total of $2.1 trillion at the end of 2017. Among the companies with the highest percentage of cash holdings in Africa, a Nigerian company was ranked in the eighth position out of 10 companies due to an

increase in its cash reserves by 45% to $550 million from $379 million in 2016.

In addition, a critical assessment of the 2016 and 2017 annual reports of Nigerian companies by Sehindemi (2018) has shown that the cumulative volume of cash retained by 10 Nigerian non-financial companies between these two years is: (2017: N108.3 billion; 2016: N95.39 billion), which indicates an increase of 12.73% year-on-year. The cash holdings constitute 2.89% of the aggregate N3.74 trillion asset base of companies. In addition, the increase in the cash holdings of some companies (e.g., Dangote Group, Nigerian Breweries, Guinness Nigeria, Flour Mills, Lafarge, and Cadbury) is as high as 24%-45%, and in other companies (e.g., Nestle Nigeria, PZ Cussons, Unilever Nigeria, and Du l Prima Foods), their cash holdings have plummeted by almost 46%.

However, the reason for such an increase and decrease remains a subject of discourse. Therefore, there is a need to find out the determinants of corporate cash holdings in the Nigerian capital market. This has become necessary because, despite the growth in the total amount of cash holdings, especially between 2016 and 2017, the number of companies expelled from the Nigerian Stock Exchange because of non-performance and failure to meet the required post-quotation standard is high at 22 companies. Therefore, one needs to be curious why this is so; could it be that the performance of companies has been plummeting or companies have been financially constrained, which in turn has led to a greater amount of cash holdings? This is because financially constrained companies have greater difficulty accessing external financing. Such companies will use part of the upsurge in cash flow to boost their cash holdings in order to carry out some investment projects without external financing. Thus, the upsurge in the cash flow could result in an increase in cash holdings of financially constrained companies.

The remainder of the paper is organized as follows: Section 2 provides the literature review and hypotheses development; Section 3 discusses the research design; and Section 4 concludes the paper.

LITERATURE REVIEW

Generally, there are several reasons for holding cash, but among the reasons pointed out by Keynes (1936) are transaction, precautionary and speculative reasons. The transaction motive of holding cash is the need for cash for day-to-day transactions, such as payment for goods and services. The precautionary motive is the desire for cash as a security against future unforeseen fluctuations that may result in the unavailability of cash or possible negative financial crunches because of high cost of outside funding. The speculative motive is the need for cash to secure profit and being more informed than the market as to what the future holds. However, in a frictionless financial market, neither the precautionary and speculative motive is compelling because external financing for investment in production activities, or to meet the temporary operating cash flow shortfalls can always be obtained at a fair price. Therefore, companies can maintain zero excess cash.

Besides Keynes (1936) who documented evidence of holding cash, other scholars have argued that agency and tax motives could add to the reason why companies hold cash. For instance, Jensen and Meckling (1976) suggested that the problem of asymmetry information that arises due to conflict of interest between shareholders and debt holders, could lead to increase in the cost of new equities, thereby making companies stockpile cash. However, the pecking order theory of Myers and Majluf (1984) indicates that companies prefer to utilize external financing for investment purposes.

Therefore, it is not likely that companies will retain cash balances. However, when external financing is costly, Kim, Mauer, and Sherman (1998) argued that the optimal amount of cash is determined by a trade-off between the low return earned on liquid assets and the benefit of minimizing the need for costly external financing. These benefits could be in the form of decreasing the probability of financial distress (John, 1993; Uyar & Kuzey, 2014); promoting profitable ventures (Kim et al., 1998; Opler, Pinkowitz, Stulz, & Williamson, 1999; Denis & Sibilkov, 2010); reducing transaction costs (Keynes, 1936); and reducing the costs of outside funding (Ferreira & Vilela, 2004), among others. The costs include the agency costs associated with free cash flow, which Jensen (1986) termed as the free cash flow theory. The theory submits that managers stockpile cash in order to have control on companies' investment decisions. As such, managers may not go for external financing to carry out investment projects, and this gives them the opportunity to invest in projects that have negative net present value (NPV), which may adversely affect the shareholders' wealth.

In line with the theoretical explanations on cash holdings, several researchers have examined the determinants of companies' cash holdings and its implications on companies (Al Najjar, 2013; Amess et al., 2015; Chen, Dou, Rhee, Truong, & Veeraraghavan, 2015; Dittmar & Mahrt-Smith, 2007; Ferreira & Vilela, 2004; Opler et al., 1999; Ozkan & Ozkan, 2004; Tran, 2020; Tripathy & Uzma, 2020; Uyar & Kuzey, 2014; Wasiuzzaman, 2014). These studies have revealed that company-specific factors (e.g., investment opportunities, cash flows, company size, performance and leverage) may provide a better explanation for cash holdings, but their findings remain controversial. For instance, Opler et al. (1999) documented that US companies with strong growth opportunities, higher research and development (R&D) spending, cash flows variability and poor access to external financing are likely to retain a large ratio of cash to total non-cash assets.

Similarly, companies with stronger performance are likely to stockpile larger balances of cash than predicted by the static trade-off model, through which managers increase shareholders value. In a similar vein, Bates, Kahle, and Stulz (2009) conveyed that increases in cash holdings are related to changes in companies' motives which are typically linked to the precautionary motive for cash holdings (e.g., cash flow volatility and R&D spending), while decreases are related to networking capital (NWC), leverage, capital expenditure and dividend. Brown and Petersen (2011) provided that minor and newer companies retain cash to cushion the effect of volatilities in R&D expenses periodically.

Consistent with prior studies in the US, Ferreira and Vilela's (2004) study of the European Union member countries, has indicated that cash holdings increase as companies' investment opportunities and cash flows increase. However, cash holdings reduce as capital expenditure, leverage and company size increase. However, with a sample of companies from 40 different countries (both developed and developing), Tran (2020) documented that investment opportunities and leverage increase cash holdings, whereas tangible assets, size and dividend payment lead to reduction in cash holdings.

In an emerging market like India, asset utilization ratio increases cash holdings, while company size, leverage, R&D and tangible assets, like property, plant and equipment, lead to decrease in cash holdings (Tripathy & Uzma, 2020). Ogundipe, Salawu, and Ogundipe (2012) who used a sample of Nigerian companies, also reported that cash holdings increase as companies' investment opportunities, leverage, inventory and accounts receivable increase. In addition, companies that are

financially distressed hold greater cash than non-financially distressed companies. However, cash holdings decrease as company size, return on assets (ROA) and NWC increase. Eneh, Okegbe, and Ndubuisi (2019) revealed that prospective profitable projects as well as cash flows increase cash holdings, but leverage reduces cash holdings.

In relation to the aforementioned evidence on determinants of cash holdings across countries, one of the determinants that affects cash holdings that has received a consensus among scholars, is investment opportunities. Another determinant that plays a central role in cash holdings is leverage; however, evidence on the influence of leverage is mixed. Given the mixed empirical evidence, this study extends prior literature by examining whether factors that affect cash holdings in financially and non-financially constrained companies in the Nigerian capital market.

HYPOTHESIS DEVELOPMENT

Several studies have shown that companies' experiencing greater difficulties in procuring outside funding would hoard a greater amount of cash (Denis & Sibilkov, 2010; Rashid & Ashfaq, 2017). In other words, financially constrained companies will retain cash for precautionary reasons and it may more likely be small companies as well as young companies (Hadlock & Pierce, 2010; Lin, 2007). In addition, Arslan, Florackis, and Ozkan (2006) showed that financially constrained companies tend to increase their cash holdings as they record increment in cash flows.

Similarly, Acharya, Almeida, and Campello (2007) revealed that financially constrained companies have a high propensity to save cash out of cash flows. Denis and Sibilkov (2010) documented that greater cash holdings by financially constrained companies (companies facing greater cost of outside financing) is due to such companies having a high level of investment opportunities that contribute to the value of the company. In contrast, some constrained companies experience low cash holdings because of persistently low cash flows. In sharp contrast to the aforementioned studies, which is based on the perspective that cash balances improve the wherewithal of companies to undertake profitable projects, Lin (2007) indicated that financially and non-financially constrained companies show positive cash flow sensitivity of cash. All these arguments therefore lead to the question on whether financially constrained companies in Nigeria keep more or less cash. This issue is important in developing countries because obtaining finance in the capital market attracts higher costs (information asymmetry and agency costs) compared to developed countries, as they can acquire external financing more easily at lower cost. Therefore, companies encounter greater obstacles by paying costlier premium to secure external financing (Arslan et al., 2006; Rashid & Ashfaq, 2017).

Similarly, in developed countries, companies can easily opt for external financing when they need capital because the financial markets there face less market imperfections, whereas in a developing country, like Nigeria, the financial markets face more market imperfections. As a result of more market imperfections in developing countries, like Nigeria, companies are constrained when it comes to undertaking profitable projects (Ogundipe et al., 2012). John (1993) argued that as costs of financial distress is high, the company might keep greater proportion of its assets in liquid form as well as becoming wary in incurring debt. Thus, a company that is on the likelihood of becoming distressed may raise cash level to reduce default risk.

However, a company that is on the verge of being distressed may not have the liquidity position to retain some cash, thereby leading to less cash holdings, meaning that financially distressed companies could exhibit high and low level of cash holdings. Despite these two arguments, there is limited empirical evidence in Nigeria to justify the assumptions. Although, Ogundipe et al. (2012) confirmed that companies that are financially distressed hold greater amount of cash, but the sample used are 1995 to 2009, which was before the occurrence of the large amount of companies delisted from the Nigeria stock exchange due to non-performance and rise in cash holdings of companies. In addition, the authors' measurement of financial distress (Altman Z-score) includes the liquidity measure, which should have otherwise being excluded in line with Kim et al. (1998). Thus, this study suggests that:

H1: Financial constraints is negatively associated with cash holdings

RESEARCH DESIGN

Sample and data source

The population of this research consists of companies traded publicly on the Nigerian Stock Exchange (NSE). According to statistics available on the website of the NSE, there are 169 publicly listed companies, as at August 20, 2020. "http://www.nse.com.ng/issuers/listed-securities/listed-companies". From the total number of companies listed, financial companies were excluded, because such companies are influenced by different accounting regulations in preparing their financial statements With the exclusion of financial companies, 102 falls under relevant sectors, however, only 63 had complete data with respect to the variables utilized in the research. Therefore, the final sample used in the research is 63 companies.

The research employed the use of secondary data. The data is extracted from Thomson Reuters DataStream of the Universiti Utara Malaysia's library. The sample is based on companies having full information based upon those factors utilized in this research. The research timeframe ranges between 2005 and 2019. The data sources have proven to be dependable because they offer better accuracy and improved credibility.

Since the data in this study were collected over a 15years period ranging from 2005 to 2019, the data becomes a panel data set. Panel data is described to be the merging of cross-sectional data and time-series. Usage of panel data enables this study to examine the dynamics of change for the data set. This type of data is able to enhance both quality as well as quantity of data for means which could not be conceivable if either of the two-ways is used independently (Baltagi & Wu, 1999; Greene, 2003; Gujarati, 2003, Ariefianto, 2012). In line with assumptions for which companies are able to promptly adapt to optimal cash holding balances, whilst devoid of encountering adaptation costs, static panel data model could be used in conducting an analysis. However, when companies are unable to rapidly adjust to their target cash holding balances, then a dynamic panel model is appropriate for usage. Arrelano and Bond (1991) proposed a technique called generalized methods of movements (GMM). This method can be called difference GMM. A substitute for difference GMM is system GMM that had been put forward by Arellano and Bover (1995), Blundell and Bond (1998). System GMM uses substantially minor sample bias, it also approximates factors of partial modification models having improved accuracy.

Following Ozkan and Ozkan (2004) argument that issues relating to endogeneity and heterogeneity could be crucial for company's cash holding choices, it is therefore important that such issues must be given attention when examining companies' cash structure. Hence, this study utilizes system Generalized Method of Moments (GMM) estimation approach for addressing such endogeneity as well as heterogeneity issues. This estimation procedure has also been used by previous studies, such as (Uyar & Kuzey, 2014), and (Rashid & Ashfaq, 2017).

Model 1

$$CH_{i,t} = \beta_0 + \beta_1 FC + \beta_2 CF + \beta_3 LEV + \beta_4 CSIZE + \beta_5 CAGE + \beta_6 LOSS + \beta_7 AST + \beta_8 NWC + \beta_9 TANG + \beta_{10} MTB + \beta_{11} DIV + IND\ dummy + YR\ dummy + \varepsilon \quad \text{----------Eq(1)}$$

$$CH_{i,t} = \beta_0 + \beta_1 L.CH + \beta_2 FC + \beta_3 CF + \beta_4 LEV + \beta_5 CSIZE + \beta_6 CAGE + \beta_7 LOSS + \beta_8 AST + \beta_9 NWC + \beta_{10} TANG + \beta_{11} MTB + \beta_{12} DIV + IND\ dummy + YR\ dummy + \varepsilon \quad \text{--Eq(2)}$$

Where L.CH = lag of cash holdings, IND dummy = industry dummy, YR dummy = year dummy and ε = error term. Other definitions of variables used in the model are presented in table 1.

$$\textbf{SA index} = -0.737\ lnassets + 0.043\ lnassets^{2} - 0.040\ company\ age \quad \textbf{……..Eq(3)}$$

Table 1: Variables Measurements

Variables	Variables acronyms	Measurement	Authors
Cash holding	CH	Cash and cash equivalents scaled by its total assets	(Almeida et al.2004; Rashid & Ashfaq, 2017; Siddiqua et al.2018)
Financial constraints	FC	Company size and SA index	(Hadlock & Pierce, 2010; Rashid & Ashfaq, 2017)
Cash flow	CF	Operating cash flow scaled against total assets.	(Kim et al.1998)
Leverage	LEV	Total debt scaled by total assets.	(Gill & Shah, 2012; Ogundipe et al.2012; Pouraghajan et al.2015).
Company size	CSIZE	Natural logarithm of the total assets.	(Ferreira & Vilela, 2004; Gill & Shah, 2012; Wasiuzzaman, 2014).
Company age	CAGE	Number of years from the date of incorporation to date.	(Wasiuzzaman, 2014)
Loss dummy	Loss	A dummy variable of 1 if a company has negative ROE in a particular year otherwise 0.	(Al-Najjar, 2013).
Assets turnover	AST	Total sales scaled by total assets	(Harford, 1999; Tripathy & Uzma, 2020; Truong & Heaney, 2013),
Net working capital	NWC	Working capital minus cash divided by total assets	(Opler et al.1999; Ozkan et al.2003; Wasiuzzaman, 2014)

Tangibility	PPE	Property plant and equipment scaled by total assets	(Wasiuzzaman, 2014)
Growth opportunities	MTB	(Book value of assets subtracted from Book value of equity added to Market value of equity) scaled against Book value of assets	(Pouraghajan et al.2015).
Dividend payout	DIV	Common dividend divided by net income	(Benjamin, Mazlina, & Effiezal Aswadi, 2016; Benjamin, Wasiuzzaman, Mokhtarinia, & Nejad, 2016).

Regression analysis

Before deciding whether the data is appropriate for panel regression, this study used the Breusch and Pagan Lagrangian multiplier test (BLM test) in conducting a comparative analysis of pool OLS regression and random regression. In relation to BLM test, the result accepted the random regression. Therefore, the study proceeds to conduct a comparative analysis of fixed and random regression using the Hausman test. The use of Hausman test is necessary as it inspects whether or not specific effects could be uncorrelated to the remaining regressors used in this model. The fixed effect model is a model that has fixed effects (FE) showed correlation to the independent variables. The random effect model is a definite model that has zero correlation. A rationale behind the use of Hausman test is that it examines the null hypothesis to ensure if the coefficients projected by the efficient RE estimators are similar to those estimated by the efficient FE estimators. In a situation whereby the p-value, prob > chi^2, is above 0.05, then random effects is suitable. However, in situation where the p-value is significant or less than 0.05, it is better to employ fixed effects. From the findings presented in the Table 2, the hausman test shows fixed effect model is appropriate. Therefore, the results discussed in this study rely on fixed effect model.

According to the fixed effect model, findings show that FC, AST, NWC, TANG and MTB are significantly and negatively associated with cash holdings (CH). Whereas, AST, NWC, TANG and MTB are negative and significant at the 1% significance level, FC is significant at the 10% significance level. These results are further corroborated with the GMM robust estimation, which is an indication that the results reported are not susceptible to endogeneity and heterogeneity problem. The negative influence of FC on cash holdings means that financially constrained companies do not retain large amount of cash. This is in line with Opler et al. (1999) argument that minor companies encounter greater challenges while trying to secure external financing as compared to major companies because major companies often show better credit ratings as well as stress-free getting of external financing.

Table 2: Panel Regression Results for determinants of corporate cash holdings

Variables	OLS	Random	Fixed	GMM	Robust
L. CH				0.259***	0.259***
				0.000	0.003
FC	-0.005	-0.016	-0.024*	-0.014**	-0.014
CF	-0.001	-0.001	-0.001	-0.001***	-0.001**
LEV	-0.063***	-0.019	0.006	0.082***	0.082
LNTA	0.002	0.002	0.001	0.003	0.003
CAGE	0.000	-0.001	-0.001	-0.002***	-0.002
LOSS	-0.018	-0.003	0.001	-0.005**	-0.005
AST	-0.018***	-0.024***	-0.025***	-0.016***	-0.016
NWC	-0.077***	-0.087***	-0.095***	-0.138***	-0.138**
TANG	-0.194***	-0.292***	-0.365***	-0.389***	-0.389***
MTB	-0.046**	-0.064***	-0.068***	-0.190***	-0.190***
DIV	0.000*	0.000	0.000	0.000***	0.000
YEAR DUMMY					Yes
IND DUMMY					Yes
R Squared	0.222				0.403
Adj R Squared	0.204	19.44	16.41		
No of observations		493		380	
Breusch-Pagan	0.000				
Hausman Test			0.001		
Sargan Test				1.000	
AR (1)				0.011	

Similarly, AST, which is a measure of asset turnover ratio and a proxy for a company's growth prospects, has negative effect on cash holdings. This evidence supports Tripathy and Uzma (2020), Truong and Heaney (2013), Harford (1999) and Jensen and Meckling (1976) argument for companies experiencing superior growth prospects are probable in encountering agency costs because when the amount of cash reserve is large, managers may likely invest in negative NPV projects that would result in poor management of assets. The negative impact of NWC on cash holdings is consistent to Ogundipe et al. (2012) and Magerakis and Tzelepis (2020) findings that cash flow to assets ratio is negatively associated with cash holdings. This shows that a company's net working capital serves as a crucial factor to determine a company's policy on holding cash. Companies having greater amount of networking capital would likely keep small amount of cash. Based on the negative association of NWC and cash holdings, it implies that Nigerian companies consider net working capital necessary to sustain the company activities without having to rely on revenue expected from the main activities of the company. The result of the study is consistent with Miller and Orr (1966) theory that indicate that net working capital may acts a vital role in being a substitute of cash.

In addition to net working capital, tangibility as well negatively impacts cash holdings. This is in line to Bates et al. (2009) and Riddick and Whited (2009) findings that capital expenditure has

negative impact on cash holdings as the rise in investment productivity reduces cash holdings of companies. The negative effect of tangible assets also reflects Tripathy and Uzma (2020) and Kebewar (2013) evidence that cash and tangible assets are substitute. Furthermore, MTB, which is a measure for a company's growth prospects displays significant negative effect on corporate cash holdings in Nigeria. This means that companies experiencing better growth prospects retain fewer amounts of cash. This evidence contradicts Duchin (2010), Chen (2008) and Ozkan and Ozkan (2004) findings that growth prospects (MTB) show positive and significant association to cash holdings. This group of studies assume that companies experiencing superior growth prospects would retain superior levels of cash balances since company's increase in market to book ratio signifies better growth prospects for such companies, as such these companies retain cash balances in trying to fund prospective profitable projects. Some year dummies (2006, 2008, 2016 and 2017) were discovered to show significant effect on cash balances that companies hold. In addition, industry dummies with the exception of construction and materials, general retailers, and technology and hardware have significant influence on the amount of companies' cash holdings.

To further examine whether those factors that determine cash holdings in financially constrained companies differs from non-financially constrained companies, this study run the regression for companies in the financially constrained cluster and those in non-financially constrained cluster separately. Therefore, Table 3 provides findings of the regression about classification of companies by constrained categories. Based on the results, cash flow (CF) is significant and positively associated with cash holdings under the financially unconstrained category. In contrast, while TANG and MTB are significant and negatively related with CF. Under the financially constrained category TANG and MTB have significant negative influence on CF. The implication of this evidence is that factors that determine corporate cash holdings depend on whether a company is financially constrained or unconstrained.

Table 3 Determinants of cash holding based on financial constraints

FINANCIAL CONSTRAINTS				
	FUC		**FC**	
Variables	**SA index**	**Firm size**	**SA index**	**Firm size**
Lag CH	0.222	0.183	-0.033	0.191
CF	0.156**	0.216**	-0.001	-0.001
LEV	0.079	0.212	0.127	0.025
LNTA	0.014	0.030	-0.055	-0.023
CAGE	-0.003	0.001	0.000	-0.000
LOSS	0.002	-0.002	-0.014	-0.001
AST	-0.066	-0.022	-0.005	-0.029
NWC	-0.171*	-0.110	-0.104	-0.140
TANG	-0.448***	-0.546***	-0.358***	-0.306
MTB	-0.249	-0.233**	-0.136*	-0.177
DIV	0.000	-0.000	-0.000	-0.000
No of observations	218	207	162	173

CONCLUSION

This study was undertaken to find out what factors could serve as determinants of corporate cash holdings within the Nigerian context. This study sought to shed light on the rationale(s) behind the decision of companies to retain such great levels of cash balances. This study employed the use of 63 companies out of the 161 companies traded on the Nigerian stock exchange spanning duration of 15 years commencing between 2005 and ending at 2019. Based on the static and dynamic panel data regression findings, cash flows, net working capital, tangibility and market to book ratio, show significant effect upon cash holdings. Furthermore, cash flow was found to have negative association to corporate cash holdings and this was supported by the trade-off theory. Company size showed positive association to corporate cash holdings supported by the pecking order theory. Growth prospects showed negative association to corporate cash holdings supported by the free cash flow theory. This study offers improved clarity on the determinants of cash holdings. This study in general, offers stakeholders that are associated one way or the other to this topic of corporate cash holdings a comprehensive explanation and analysis about important variables that have crucial impacts on cash holdings of companies traded on the Nigerian stock exchange. Likewise, a contribution of this study stems from the fact that companies need to come up with strategies in ensuring that company should ensure that their cash is managed efficiently and effectively.

Overall, findings of this study are beneficial for academicians, managers and policy regulators. Additionally, findings of this study also serve as a guideline in improving the literature and knowledge to those factors that determine corporate cash holdings for publicly traded companies on the NSE. The expectation for this research is to be able to provide a number of thoughts and concepts to those concerned with financial management of public listed companies in order to be able to adjust cash levels in such a way that would lead to growth of the company.

This study encountered several drawbacks and limitations with respect to its data source. Firstly, there are insufficient data on a number of companies in the database used for data collection making it difficult for these kinds of companies to be included in this study. In addition, this study excluded companies in the financial services industry because such companies are influenced by different accounting regulations in preparing their financial statements. Further, this study entailed the non-usage of certain explanatory variables, including macroeconomic variables, management structure, ownership as well as corporate governance. Likewise, findings of this study herein cannot be applied to private companies or SMEs companies as different factors might have effect on the cash holdings of these categories of companies.

Given the prevalence of a dearth of literature on determinants of cash holdings for a developing economy like Nigeria, this research can holistically serve as a reference for future research on this topic. In relation to findings of this study, many ideas are thought of which are beneficial as recommendations for future research in this field. Future research should contemplate the inclusion of certain control variables, like corporate governance and business strategies so that findings become more robust. In addition, future research can come up with new hypotheses, particularly with regards to macroeconomic variables like inflation rates, interest rates, currency exchange rate etc. Furthermore, future research can as well examine the pattern of corporate cash holdings in times when financial crisis occurred. Likewise, future researches are encouraged to examine on the effects of corporate cash holdings on

companies' performance.

CONFLICT OF INTEREST

The authors have no conflicts of interest, whether financial or otherwise, in conducting this research.

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