Determinants of Cash Holdings among Quoted Firms in Nigeria

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Abstract

The study examined the determinants of cash holdings among quoted firm in Nigeria. This study used quoted manufacturing firms in Nigeria that have consistently published their audited annual financial report for the period of 2015 to 2019 and adopted a panel multiple regression analysis using panel data to test the formulated hypotheses and conducted descriptive statistics and correlation analyses. The result shows that firm profitability has an insignificant positive relationship with cash holdings, revenue growth has a significant negative relationship with cash holdings, firm age has an insignificant positive relationship wit cash holdings while firm size has an insignificant positive relationship with cash holdings The study recommends that management should ensure that there is a trade-off between leverage and profitability for proper maintenance of optimal cash balances among quoted firms in Nigeria.

Keywords: Cash Holding, Firm Age, Firm Profitability, Firm Size, Revenue Growth.

JEL Codes: G32, M34

1. Introduction

The importance of cash cannot be overemphasized in any business organisations (Soyemi & Olawale, 2014). Cash holding (CH) has been given much attention by companies, investors, and analysts in recent time, because it is a vital asset on firms' financial position. CH is the keeping of cash for investment decisions and meeting precautionary needs in a given corporate organisation. Umry and Diantimala (2018), stressed that cash is the most liquid asset in a company which can be used to meet daily operations of the company". Suherman (2017) argued that financial managers have the tendency of determining the level of cash withdrawal and used for investment purposes by considering the company's financial performance. Cash helps to create room for potential managers devote to working-capital management and to investments that generate revenue given the premise of cash holdings. Akono (2016), states that cash flow are a contract-relevant which varies with the sensitivity of shareholders' value to free cash flow.

Ahmed, Qi, Ullah and Kimani, (2018) stated the process of maintaining and sustaining the

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level of cash in a corporate organisation is a function of the firms' normal transaction and business operations. Abioro (2013) claimed that prompt cash management brings about business organisation preference for short term finances and investment preference of collection and disbursement approaches. Cash and cash equivalent are the most constituents' part of the current assets of the firm and is seen as the life line of corporate financial management. Onyeka, Nnado and Iroegbu (2018) viewed that the process of optimizing a firm's CH, it means that current assets must be able and adequately meet its current liabilities in times of liquidity squeeze. Ahmed, et al, (2018), argued that a firm's policy of holding cash at a very low level would automatically affect the long-term solvency of companies.

Some of the literature in the area of cash holding has been examined this issue in cross-country and comparative perspectives. For example, Umry and Diantimala (2018), investigated the determinants of CH of manufacturing companies in Indonesia" and Shabbir Hashmi and Chaudhary (2016) carried a study on the determinants of corporate CH in Pakistan. While, in Spanish, Martinez-Sola, Garcia-Teruel and Martinez-Solano (2018), studied the effect of CH in SMEs. Moreover, Farinha, Mateus and Soares (2018), investigate the relationship between CH and earnings quality in United Kingdom. Pastor and Gama (2013), studied the determinant factors of CH in Portugal and Ahmed, et al, (2018), examine the determinants of corporate cash holdings in the China. The inconclusive and inconsistent nature of the existing literature is the motivation for further empirical studies on the determinants of CH of quoted firms in Nigerian by employing panel research approach (methodology gap). The study intended to extend frontiers in knowledge gap on the aforementioned subject that this study focused on the determinants of CHs of quoted firms in Nigerian.

2. Literature Review and Hypotheses Development

2.1 Concept of Cash Holdings

Cash is the most liquid asset in any business organisations for the starting up a business venture (Pandey, 2004). Almeida, Campello, Cunha and Weisbach (2013), are of the view that cash is the real liquid resource always used by business organisations and also the avenue of meeting up future investment needs. According to Gill and Shah (2012), CH is seen as the process of keeping cash by a company for investment purposes and distribution of dividend to shareholders. In the opinion of Brealey, Myers and Marcus (2007), the process of managing cash in corporate oraganisations entail planning and control of components of current assets, accounts receivables (trade debtors), cash, prepayments, cash equivalents/short term investments; and current liabilities: accounts payables (trade creditors), accruals, bills payables and short-term financing.

Onyeka, *et al,* (2018), argued that financial mangers principle of cash management must be based on efficient practices for companies operating manufacturing sector desire to satisfy the diverse interests of stakeholders". Tulsian (2015) emphasized that management measures the efficiency of business operation in relation to the productivity of capital employed. In the view of Borici and Kruja (2016), the firm's CH strategy provides a trade-off between the costs of holding cash and spending the cash. Moreover, businesses embrace a definite amount of cash in order to gather the usual operating costs. Moreover, the presence of liquid assets out-side the context of cash and marketable securities can also affect firms' optimal CHs (Borici & Kruja, 2016).

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2.2   Determinants of Cash Holdings

The determinants of CHs explore in this study include firm size, firm profitability, revenue growth and firm age.

2.2.1 Firm Profitability

Firm profitability (FP) can be defined as the ability of corporate organisations to generate enough revenue in excess of operating expenses (Onyeka, et al, 2018). However, Alshatti (2015) see firm profitability as the relationship between the cash earnings generated by the company and the investments that earned the excess returns or profit to the organisation. The dynamic theory of profitability states that there is difference between price and cost as a result of reductions in the cost affected by changes in the economy (population growth) bring about falls in wages), increased capital supply (falls in interest rate charged) and technological improvements (reduces the costs) (Doni, 2009). On the premise of profitability in business organizations, "managers are solely to maximize the firms' wealth. Profitability is the degree of efficiency and effectiveness with which organizational objectives and goals are achieved. Aliabadi, Dorestani and Balsara (2013) are of the view that net income is a commonly used as a measure of profitability and performance, alternative measures of performance such as operating income, earnings before interest and tax, cash flow from operation, sales revenue and comprehensive income are also used.

Onyeka, *et al,* (2018:1), conducted a study on the effect of cash and liquid substitutes on profitability of selected quoted manufacturing firms in Nigeria. The study used an expost-facto research approach through quantitative panel methodology where thirty-six (36) manufacturing firms quoted on the Nigerian Stock Exchange for the periods of 2003-2017 for the data analysis. The Levin-Lin-Chu panel unit-root test conducted revealed the existence of stationarity while Westerlund panel co-integration tests that revealed that the variables were not co-integrated in the long run. The Hausman test conducted affirmed the suitability of the Fixed Effects (FE) multiple regression model. The results from the fixed effect panel regression showed that firm profitability measured by returns on asset had a significant positive effect on cash holdings. Fasesin, Ayo-Oyebiyi and Folajin (2017:16), carried out a study on the influence of working capital management practices on small scale enterprises (SSEs) performance in Osun State of Nigeria. The study made use of survey research design to sample 100 small scale businesses operating in Osogbo, Ilesa, Ife, Iwo and Ede Local Government Area of Osun State through purposive sampling technique and descriptive and inferential statistics were applied. The regression results showed that cash management practices and trade credit management practices had an insignificant positive influence on SSEs performance while inventory management practices have insignificant inverse on SSEs performance. Based on the findings, none made use of panel data methodology in the analysis of data, we there proposed that:

Ho1: Profitability has a significant relationship with cash holdings of quoted firms in Nigeria.

2.2.2   Revenue Growth

Growth opportunity in the area of revenue is a promising factor affecting company's level of cash holding. In the opinion of Myers (2003), the value of growth opportunities of a business organisation is the present value of the business organisations to option to commit future investment. Revenue growth enables business organisations to holds cash in the

future in order to meet profitable investment projects. Ozkan and Ozkan (2004) concluded from a study on corporate CHs in United Kingdom quoted companies that revenue growth opportunity CHs are positively related effect on cash holding. In New Zealand, Hofmann (2006) examines the determinants of corporate CHs and concluded that growth opportunities and cash variability had a significant positive impact on cash holding while leverage dividend payment had a significant negative impact on CH. More importantly, generating revenue in the form of liquid form make the business organisations to stand in a favourable cash position compare to companies with higher investment opportunity than companies with uncertain investment opportunity due to their financial problems (Denis & Sibilkov, cited in Bigelli & Vidal, 2012). Ferreira and Vilela (2004), study why do firms hold cash and found out that high level of revenue growth would significantly and positively enhance the level of CH. In same vein, Megginson and Wei (2010) study on the determinants of cash holding in China showed that Size, profitability and growth opportunities and state of ownership had a significant positive influence on CH while debt and net working capital had a significant negative influence on CH. Based on the following, we proposed that:

Ho2: Revenue growth has a significant relationship with cash holdings of quoted firms in Nigeria.

2.2.3   Firm Age

Firm age is one of the most important determinants of cash holding. According to Ashharia and Faizala (2018), older firms have the tendency of witnessing more stable cash flows and lower growth opportunities than younger firms. Therefore, matured firm with better reputations and goodwill has access to fund because of the long relationship with money deposit banks while smaller and younger firms are more likely to be financially constrained. Moreover, older firms can easily achieve the optimal level of cash holding instead of excessive cash holding. Therefore, "inefficiency of cash holding is usually associated with younger firms and thereby affects the firm liquidity level and impact on firm performance (Priya & Nimalathasan, 2013).

Ashharia and Faizal (2018), studied the effect of CH on small business performance in Malaysia. A sample of 100 SMEs was collected for the period of 2011 to 2016 for the analysis of data with the help of panel regression methodology approach. The results showed that firm age had an insignificant effect on cash holding while firm leverage, growth opportunity, firm size, cash flow volatility, capital expenditure and net working capital had a significant positive effect on CH of small business. Saddour (2006) study in France on CH showed that younger and growing companies had a negative relationship with CH, firm size, level of liquid assets and short-term debt and cash level of mature companies increase with their size, investment level and dividend payout to shareholders and decreases with their trade credit and their expenses on research and development. Megerakis (2015), study the determinants of CH between 180 and 2012 in UK. The regression results revealed that firm age, firm size, firm leverage, tax expenses, net working capital, cash flow, capital expenditure had a significant negative influence on CH while investment opportunities, R & D, market to book ratio had a significant positive influence on CH. In order to investigate the determinants of cash holding, we proposed that:

Ho3: Firm age has a significant relationship with cash holdings of quoted firms in Nigeria.

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2.2.4   Firm Size

Firm size is one of the determinants of cash holdings. Manoel, Costa Santos and Neves (2018) argued that the smaller the company size, the need to hold more cash for safety liquidity and illiquidity problems that may arise in the future. Firms that are larger in size have more cash to invest in modern technology and expertise to generate in time financial information to public. Deegan and Unerman (2006) viewed that if managers believed that they are been monitored by the government regulators, they are likely to select accounting techniques to manipulate the cash balances. However, some of the firms with better financial position are subject to strict policies imposed by the government or other legislating authorities and bear great costs. Hence, they attempt to evade such costs and are more motivated to report less earning.

Ahmed, *et al,* (2018), examined the determinants of corporate CHs in the China. Therefore, the objective of the study was to investigate whether the research findings on developed countries could be generalized globally. The employed a panel research design where 115 firms listed in Chinese stock exchange was sampled for the period of 2012 to 2016 for the data analysis. It would be revealed from the fixed effect panel regression analysis that firm size, cash flow, board independence and ownership concentration has a significant positive influence on the level of corporate CHs. The results also showed that leverage, bank debt, noncash liquid assets and managerial ownership and level of corporate CHs were negative and significantly related while cash flow volatility, investment opportunity and dividend had a significantly positive relationship with CHs levels.

Borici and Kruja (2016) carried out a study on the determinants of CH in non-financial firms of Shkodra region across different firm sizes and industries. A sample of total of 30 firms which represents 60 firm-year observations for the period of 2013 to 2014 was used for the analysis of data. The results showed that firm size, net working capital and total debt had a significant impact on CHs. Afza and Adnan (2007) study in Pakistan show that market-to-book ratio, net working capital, leverage, dividends had a negative relationship with CH and firm size, and cash flow had a significant positive relationship with cash holdings. Lack of empirical findings in Nigeria on the determinants of CH is the rationale for proposing that:

Ho4: Firm size has a significant relationship with cash holdings of quoted firms in Nigeria.

2.3   Theoretical Review

The study was based on the pecking order theory (POT) and trade off theory (TOT). These theories were discussed below;

2.3.1   The Pecking Order Theory

The pecking order theory (POT) was propounded by Myers and Majluf (1984). They suggest that more profitable firms will usually have a less leverage position. According to this theory, firms prefer retained earnings to external finance such that even when external finances are later required the firm will most definitely prefer debt before equity. Grounded on the pecking order theory, Myers and Majluf (1984) state that a firm would prefer debt finance to equity finance when the use of external finance is required. They further explained that the framework of the theory is based on asymmetric information. Moreover, asymmetric information enables the investors to have a positive mindset about the company

performance and growth prospect (Thu & Khuong, 2018). Frank and Goyal (2007), "added that investors explore all means to protect themselves in the market in the event of lowering the price of new shares issued or reduced dividends and high valuations with the shares increase the rate of paying dividends or increase the rate credits. The POT holds that companies do tend to manage financing using the easiest approach first, but it does not imply that one particular mode of financing is superior to another. It seeks to explain how companies prioritize their financing sources. The general idea being that firms tend to take the choice with the least resistance, thus obtaining finance from sources that are readily available and then steadily moving on to other sources with the greatest resistance or more difficult to utilize.

2.3.2 Trade-off Theory

Trade-off theory (TOT) enables the financial managers to maximize shareholder's wealth in order to obtain optimal CHs level by weighing the marginal benefits and marginal costs of holding cash (Per Afza & Adna, 2007). Company aims of holding cash helps in bringing down transaction cost of raising funds from the capital markets. Besides, the TOT takes advantage of debt financing (tax savings) and cost associated with debt financing cost of bankruptcy and non-bankruptcy cost that is related to debt. The TOT predicts that firm with less risky tangible assets have low cost of financial distress and will be encouraged to employ more debt via borrowing. Conversely, firms with intangible risky assets are more expose to risk of financial distress and they are expected to use lesser debt in their capital structure (Shah, 2012) The cost of CH is the opportunity cost of capital invested in liquid assets such as forfeited profitable investments (Ferreira & Vilela, 2004). The trade-off theory anchored the study because it enables financial managers to manage finances of the company by maximisisng wealth for the shareholders. The theory creates a platform for the manager of funds to explain how companies prioritize their financing sources in satisfying the need of the stakeholders.

3.   Data and Methods

The study made use of longitudinal research design to empirically investigate the determinants of cash holding among quoted manufacturing companies in Nigeria for the period of 2015 to 2019. The population of the study consists of quoted manufacturing companies in the Nigeria Exchange Group. The sample size of the study was determined by Ewododhe (2011) statistical formula: One-third (1/3) of the sampled population. However, Ilaboya and Christain (2014) and Ogbaisi, *et al* (2016) had used technique and it is mathematically expressed as:

n=1/3N
Where n = Sample size
N = Total population
n = 1/3 x 57
= 19.

3.1 Model Specification

The study made use of panel data multiple regression approach. The model assumes that the dependent variable is a linear function of the independent variables with consideration to the heterogeneity in the pooled companies. This study adopted panel data model used by

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Takon and Atseye (2015), Jebran, Igbal, Bhat, Khan and Hayat (2019), Ahmed, et al, (2018) and Onyeka, et al, (2018). The justification of the panel research model is because it helps to deduced information that will provide less collinear variables (Niskanen Niskanen, 2006).

The panel multiple regression model with an error term (ε_t) is specified in econometric form as:

$$CSH_{it} = \beta_0 + \beta_1 FPT_{it} + \beta_2 RGT_{it} + \beta_3 FA_{it} + \beta_4 FS_{it} + z_{it} + \varepsilon_{it} \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots$$ (1)

β_0 = constant

β = variables that vary across companies but do not vary over time

ε_{it} = error terms over the cross section and time.

The presumptive signs of the parameters in the specifications are:

$\beta_1, \beta_2, \beta_4 > 0, \beta_3 < 0$

Table 1: Measurement of Variables

Variable	Measurement	Sources
CSH = Cash holdings (Dependent variable)	Cash holding was measured by dividing cash and cash equivalent by total assets.	Umry & Diantimala (2018).
Firm profitability (Independent variable).	Firm profitability was measured by dividing profit after tax by total assets.	Onyeka, et al (2018).
Revenue growth (Independent variable).	Revenue growth was measured by the ratio of revenue year-end minus revenue previous year and revenue previous year.	Han and Qiu, 2007.
Firm age (Independent variable).	Firm age was measured by the number of years that separate the present date and the incorporation date.	Cheng, 2008;
FS = Firm Size (Independent variable).	Firm size was measured by the logarithms of total assets	Al-Najjar and Clark, 2017.

Source: Author's Compilation (2022).

4.   Data Analysis and Discussion of Findings

4.1   Descriptive statistics

It was observed from Table 2 above that the mean (average) for each of the variable, their standard deviation and Jarque-Bera (JB) statistics for normality test. A look at cash holdings (CSH) shows that on the average over the six-year period of the sampled firms was N6, 260, 035 million and a standard deviation value of 10451373. We observed that on the average firm size (FS) measured by natural logarithms of total assets was 2.07 with a standard deviation value of 0.74. It was also observed that on the average. The variable, firm profitability (FPT) on the average was 7.73 with a standard deviation value of 10.19 among sampled quoted companies. Revenue growth (RGT) on the average was -0.05 with a standard deviation value of 0.84 and firm age (FA) on the average was 58.10 with a standard

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deviation value of 20.55. Lastly, the Jarque-Bera (JB) statistics shows that CSH, FPF, RGT, and FA were normally distributed at 1% level of significance while FS was abnormally distributed.

Table 2: Descriptive Statistics

Variables	Mean	Std. Deviation	Jarque-Bera	Observation
CSH	6260035	1045137.3	465.70 (0.00)	117
FS	2.07	0.74	4.22 (0.12)	117
FPT	7.73	10.19	378.02 (0.00)	117
RGT	-0.05	0.84	10083.19 (0.00)	117
FA	58.10	20.55	37.25 (0.00)	117

Source: Authors' Computation (2022)

4.2   Correlation Matrix

The Pearson correlation coefficient (correlation matrix) and the results are presented in table 3a. It was observed that firm size (FS) was positively and moderately correlated with cash holdings (CSH = 0.54). Firm profitability (FPT) negatively and weakly correlated cash holdings (CSH = -0.02). Revenue growth (RGT) was negatively and moderately correlated cash holdings (CSH = -0.25) and firm age (FA) was positively and moderately correlated with cash holdings (CSH = 0.12). The test for the presence of multicolinearity among the explanatory variables, the Variance Inflation Factor (VIF) was conducted and the result presented in the Figure 1 above. It was observed from Figure 1 above that the mean aggregate value (MAV) of centered VIF (1.29) that there is the absence of multicolinearity problem. The absence of multicolinearity problem was because the value of 1.29 did not exceed 10 as stated by Field (2009). This implies that none of the independent or explanatory variables were perfectly correlated.

Table 3A: Pearson Correlation Matrix

	CSH	FS	FPT	RGT	FA
CAH	1.00				
FS	0.54	1.00			
FPT	-0.02	-0.03	1.00		
RGT	-0.25	-0.12	0.07	1.00	
FA	0.12	0.15	-0.12	-0.04	1.00

Source: Authors' Computation (2022)

Table 3b: Variance Inflation Factor

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	2.62E+13	54.33350	NA
FS	1.78E+12	18.01605	2.056814
FPT	4.83E+09	1.632907	1.033556
RGT	7.07E+11	1.054257	1.049957
FA	1.20E+09	9.449858	1.043403

MAV=1.29

Source: Authors' Computation (2022)

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4.3   Determinants of Cash holding

It was observed from Table 4 that the coefficient of determination (R2) value of 0.495874 that about 50% for the fixed effect and random effect of 0.326286 that about 33% of the systematic variations in dependent variable was jointly explained by independent variables. The F-statistics probability values of 0.000000 showed that there is a significant linear relationship between the variables. The Chi-square result 68% is not significant. This means that we should accept H0 which states that the random effect panel regression result is preferable.

Specifically, firm profitability (PFT) has an insignificant negative relationship with cash holdings (CSH) at p-value >0.05. The negative coefficient signifies that increase in firm profitability would lead to a decrease in CSH but it is statistically insignificant. Revenue growth (RGT) has a significant negative relationship with cash holdings (CSH) at 5% level of significance. This means that we are 95% confidence level that in increase revenue growth would significantly lead to a decrease in CSH quoted companies in Nigeria. Firm age (FA) has an insignificant positive relationship with cash holdings (CSH) p-value >0.05. The positive coefficient signifies that the older the firm the higher the level of cash holdings but it is statistically insignificant. Also, firm size (FS) has an insignificant positive relationship with cash holdings (CSH) p-value >0.05. The positive coefficient signifies that increase in the size of the firm would lead to increase in CSH among quoted companies in Nigeria but it was statistically significant.

Table 4: Panel Regression Results

Fixed Effect				Random Effect			Hausman Test
Variable	Coefficient	t-test	P-value	Coefficient	t-test	P-value	
C	-18270578	-3.58	0.0005	-19420169	-2.92	0.0042	
FPT	35425.80	0.51	0.6137	-19421.26	-0.21	0.8365	
RGT	-1200929	-1.39	0.1653	-1791816	-2.25	0.0268	
FA	30331.69	0.87	0.3845	42040.68	0.87	0.3869	
FS	3091506	2.22	0.0283	1788140	0.98	0.3279	
R-Square = 0.548025				R-Square = 0.366941			Stat. Chi.Sq=4.82
Adj.R^2= 0.495874				Adj.R^2= 0.326286			Prob.=0.6812
F-Stat= 10.50843 (0.00)				F-Stat = 9.025710 (0.00)			

Source: Authors' Computation (2022)

4.4   Discussion of Findings

Following empirical findings from the random effect unbalanced panel regression models show that firm profitability had an insignificant negative relationship with CSH. The result is contrary with the findings of Onyeka, Nnado and Iroegbu (2018) and Rezaei and Neghabi (2016) that there is a significant relationship between profitability index of company and earnings management in the global financial crisis. Revenue growth had a significant negative relationship with CSH at 5% level of significance. The result is in line with findings of Arfan, *et al,* (2017), Ozkan and Ozkan (2004) and Opler, *et al,* (1999) that a

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positive and a significant relationship exist between revenue growth and CSH. Firm age had an insignificant positive relationship with cash holdings even at 5% level of significance. The result is in line with the findings of Ashharia and Faizal (2018) that firm age had an insignificant relationship with CSH. Firm size had an insignificant positive relationship with cash holdings. The result is contrary with the findings of Borici and Kruja (2016) and Afza and Adnan (2007) that firm size had a significant impact on CSH.

5.   Conclusion and Recommendations

The aim of the study is to investigate the determinants of cash holding among quoted manufacturing companies in Nigeria. Cash holding has been given much attention by companies, investors, and analysts in recent time, because it is a vital asset on firms' balance sheets. Cash holding is the keeping of cash for investment decisions and meeting precautionary needs in a given corporate organisation. The costs of cash holding include the cost of excessive cash holding which is the opportunity cost of interest foregone, costs of purchasing power among others while the cost of inadequate cash holding involve the cost of corporate image, loss of cash discount on purchases and loss of business opportunities. The random panel regression showed that revenue growth had a significant negative relationship with cash holdings at 5% level of significance, while firm profitability, firm age and firm size had an insignificant relationship with cash holdings.

Based on the major findings, we therefore recommend that:

(i)   The study recommends that management should create revenue growth strategy that would improve optimal cash holding among quoted firms in Nigeria.

(ii)   The study recommends that management should ensure that firm profitability bring about optimal cash balances among quoted firms in Nigeria over time.

(iii)   The study recommends that older firm has the tendency of raising the level of cash holding in the long-run.

(iv)   The study recommends that management should create expansion strategy for commanding high level of cash holding over time.

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