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TOP MANAGEMENT CHARACTERISTICS AND CASH HOLDINGS OF PHARMACEUTICAL FIRMS: A CROSS COUNTRY ANALYSIS

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Abstract

This study examines the effects of top management on cash holdings of pharmaceutical firms in Nigeria and Ghana. The study relies on secondary data derived from various companies' financial statements and the Stock Exchange fact book to determine and measure the level of cash holdings in corporate financial statements, applying an all-inclusive multivariate analysis. Samples of 12 pharmaceutical firms quoted in Ghana and Nigeria Stock Exchange were used for the period of ten years spanning 2010 to 2019. The study employed ex-post facto and longitudinal research design. The secondary sources of data were collected from annual reports of the selected pharmaceutical goods companies and four (4) specific objectives and hypotheses were tested and analyzed using descriptive statistics, Pearson correlation analysis and panel regression analysis. The empirical analysis using a total of 120 company-year observations, shows that managerial ownership has both negative effect on cash holdings of pharmaceutical firms in Ghana and Nigeria which was statistical significance at 5% level of significance. Board diligence was seen to have a positive and significant effect on cash holding of pharmaceutical firms in Nigeria at 5% level of significance. On the other hand, non-executive directors have negative and insignificant effect on cash holdings of pharmaceutical firms in both Nigeria and Ghana. However, we therefore recommend that pharmaceutical firms in both Nigeria and Ghana should minimize the proportion of their managers shareholding to effectively improve cash holding capabilities of the firms while number of meetings expressed in board diligence should be emphasized to determine the level of cash and cash equivalents to be held as assets by the pharmaceutical firms in Nigeria.

Keywords: Cash holding, top management, board diligence, board size, managerial ownership, Nigeria and Ghana.

Introduction

Handling cash liquidity is the most financial strategy a company must deal with as companies are not able to bear the price of running out of cash as this may cause serious operational backlashes, including the winding up from the company if it consistently ceases to pay bills while they fall due (Mohd, Latif & Saleh, 2015). As a result of this, one of the problems faced by finance managers in managing cash is determination of appropriate source of fund for the company either to be used as the initial or working capital. Other challenges are identification of right investment opportunity for idle funds, non-cash planning, and determination of the optimal level of cash to be maintained by the company. Cash management is therefore a key issue for corporate financial policies. Similarly, Gallagher (2000) opined that cash management involves a trade-off between the need for liquidity and desire for profitability. The more cash a firm hold, the more liquid it becomes, however piling up funds to sustain liquidity will prevent fund from being invested in long term, high return producing assets. Kesseven (2006) submitted that most managers are faced with the challenge of achieving a desired trade-off between liquidity and profitability in maximizing the value of the firm. He therefore warned that too much focus on profitability may cause asset–liability mis-match resulting in increased profitability in the short run at a risk of insolvency.

Several studies have been carried out on the factors that affect corporate cash holdings in emerging economies with most done on developed markets. The majority of studies conducted so far in this particular issue are based on developed countries like United Kingdom, United States of America, Malaysia without considering emerging economies like Nigeria and Ghana. Such studies include Hilgen (2015), Deshmukh, Goel and Howe (2015), Bigelli and Sanchez-Vidal (2010), Bates, Kahle, and Stulz (2009), Chen and Chuang (2009), D'Meilo et al., (2008); Han and Qui, (2007); Harford et al., (2008); Ferreira and Vilela (2004), Ozkan and Ozkan (2004), Dittmar and Mahrt-Smith (2007), Pinkowitz and Williamson (2001).

These prior studies that examined the factors of cash holdings found mixed results and therefore have inconsistent evidence. For example, Hilgen (2015) found positive and significant effect between good corporate governance and cash holdings, Dittmar and Mahrt-Smith (2007) show that the value of excess cash is reduced when firms are poorly governed. Pinkowitz, Stultz, and Williamson (2006) and Kalcheva and Lins (2007) provide similar evidence in their cross-country analysis. K.usinadi (2003) found positive and significant effect between board size and cash holdings while block holder ownership is inversely related to cash holdings. On the other hand, Bates, Kahle, and Stulz (2009) found that there is no significant evidence between corporate cash holding practices and firm-level corporate governance. Lie and Yang (2016) documented that firms with excess cash are more likely to be targets of proxy fights, and firms reduce cash holdings following such proxy fights. Dittmar and Mahrt-Smith (2007) and Kalcheva and Lins (2007) use international evidence to show that better shareholder protection is associated with lower cash holdings.

It is evident from the above studies that prior researchers have not established clear cut direction of the relationship between top management and cash holdings of pharmaceutical firms in West African countries. All these prior studies depict mixed results and inconclusive findings. Besides, the literature on top management characteristics and firm cash holdings in an emerging economy like Nigeria and Ghana is scarce. To the best of our knowledge, little is known of prior studies on the effect of top management characteristics on cash holdings of quoted firms in West Africa. Thus, it is needful to conduct this study in the Nigeria and Ghana context to investigate the behavior of Nigerian and Ghana top management team as it relates to cash holdings. This is the gap in knowledge this current study sought to fill. Therefore, in the light of the foregoing, this study aims to investigate the effect of top management characteristics (Non-executive directors, board size, managerial ownership and board diligence) on cash holdings of pharmaceutical firms in West African countries. The remnant of this paper is subdivided into five sections including this introduction. In the second section, we review some related literatures to explore the theoretical constructs and hypothesis development while third section discusses the methodology. Fourth section looks at the data presentation and analysis while in the last section we draw our conclusion and proffer recommendations for policy implication.

Empirical Literature and Hypotheses Development

Firm Cash Holdings and Top management: In the words of Shah (2011) Cash holding is the cash in hand or readily available for investment in physical assets. Cash holdings, according to Gill and Shah (2012) are defined as cash in hand or financial instruments readily available for investment and also available to be distributed to investors. Cash holding is therefore viewed as cash or cash equivalent that can be easily converted into known amount of cash. In the words of Hilgen (2015) cash holdings are commonly defined as cash and marketable securities or cash equivalents. Cash equivalents are current assets, which can be converted into cash in a very short term and are thus characterized by a high degree of liquidity. They include for instance treasury bills, certificates of deposits, bankers' acceptances and money market instruments. According to Ferreira and Vilela (2004) the benefits of cash holding includes reduction in the likelihood of financial distress, allowing the pursuance of investment policy when financial constraints are met. Top management is an aspect of corporate governance variables that looked at the attributes of top management officials. Orjinta and Orjinta (2018) conceptualized top management as those at the helm of the affairs of organizations otherwise called Top Management Team (TMT).

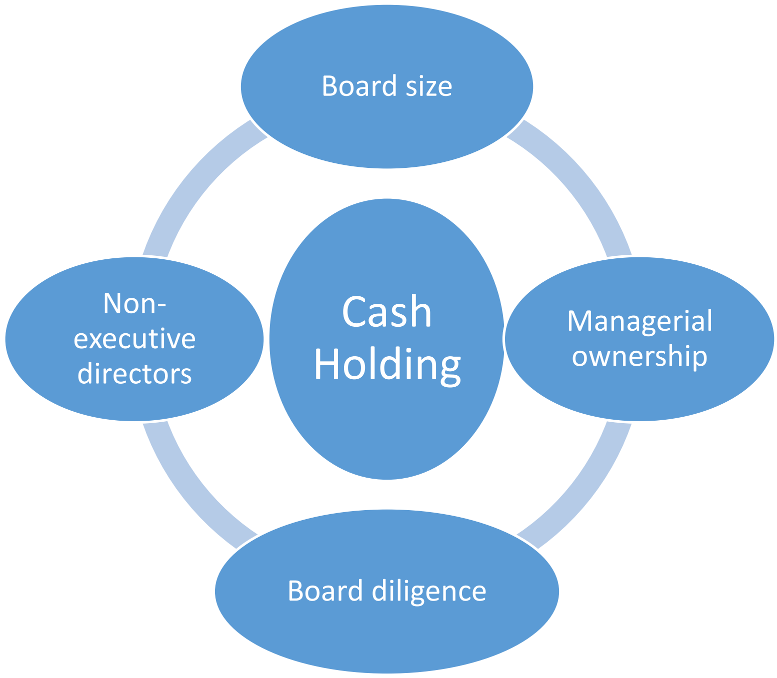
Non-Executive Directors and firm cash holdings: Non-Executive Director is a proxy to measure board independence and effectiveness. Non-Executive Director was measured as the percentage of the number of non-executives to the total number of members on the firm's board. Otman (2014) opined that composition of the board refers to the proportion of inside and outside directors serving on the board which include both executive and non-executive directors. Chhaochharia and Grinstein (2007) found that firms that are noncompliant with the board independence rules outperform their peers during the announcement of board independence listing requirements. Masulis and Mobbs (2011) argued that the labor market for directorships also plays a role, and report that firms with inside directors who hold more outside directorships make better acquisition decisions, hold more cash and exhibit superior operating performance. Armstrong, Core, and Guay (2014) report that exogenous increases in board independence lead to greater corporate transparency, and they suggest that board structure and transparency are jointly determined. Nevertheless, considering the contradicting theoretical argument, this article does not predict any sign for the effect of non-executive directors on firm cash holdings but propose that *there is a significant relation between* non-executive directors *and firm cash holdings (Hypothesis 1)*

Board Diligence and Firm Cash Holdings: Board diligence is evidenced by the number of committee meetings. While no specific number of meetings is mandated by the Nigerian code of corporate governance rather, they maintained that members of boards of directors should meet at least four times a year in order to endorse the quarterly financial statements. The number of meetings has been employed in prior studies as an indicator of a board's diligence, since inactive boards are less likely to monitor management effectively. It is argued that directors on boards that meet frequently are more efficient in the management of cash. Habbash (2010) justified his finding by stating that frequent meetings may not always be a characteristic of an active board of directors. It is worthy to note that the studies conducted to investigate board meetings and cash holdings have been low-key, thus their claims cannot to be generalized. Therefore, further investigation is needed in order to determine whether this element is effective or not. Nevertheless, considering the contradicting theoretical argument, this paper does not predict any sign for the effect of board diligence on cash holding but propose that *there is a significant relation between board diligence and cash holding (Hypothesis 2)*

Managerial Ownership and firm cash holdings: Managerial ownership is recognized as an important mechanism to align the interests of owners and managers. Therefore, the potential to reduce agency costs is likely to be limited in the presence of high managerial ownership. Managerial ownership aligned the interests of executive officers with those of the shareholders, and is commonly used in empirical research as a measure of the degree of agency problems in a firm (Kalcheva & Lins, 2007). However, it is known that when managers have ownership, they aim to maximize firm value rather than using the firm's resources for their own benefits. Furthermore, Megginson and Wei (2010) found a negative relationship between government ownership and cash holding. This finding suggests that government ownership could reduce information asymmetric problems. Pinkowitz, Stulz and Williamson (2003), Harford et al. (2008) and Guney, Ozkan and Ozkan (2007) also found that as shareholder protection decreases cash holdings increase. According to the findings of Ozkan and Ozkan (2004), there is a non-monotonic. relation between managerial ownership and cash holdings. Ferreira and Viela (2004) as cited by Abdioglu (2016) found that higher investor protection and concentrated ownership result in less cash holdings. Nevertheless, considering the contradicting theoretical argument, this paper does not predict any sign for the effect of managerial ownership on cash holding but propose that *there is a significant relation between managerial ownership on cash holding (Hypothesis 3)*

Board Size firm cash holdings: Board size was one of the corporate governance characteristics used as a variable to test the relationship between corporate governance and firm cash holding. It is seen as another pivotal element in board characteristics which may influence cash holding practices. Hence, Ferreira and Vilela (2004) argue that the enhanced discretionary power enables managers to exert a higher influence on firm and investment policies, which leads to a greater amount of cash. This study measures board size simply by taking the overall number of directors on the board. There is disagreement regarding the effect of board size. For example, Dewaelheyns et al. (2011) claimed that smaller boards, between four to six members, may have the ability to make beneficial decisions and monitor CEO's behaviour. The other view argues that small boards may not be effective in monitoring the behaviour of top management. However, the majority of prior studies argue that larger boards with varied expertise are capable of developing the synergetic monitoring of the board to mitigate the incidence of mismanagement thereby promoting cash holding policy (Orjinta & Orjinta; 2018). However, there are some inconsistencies that existed in the literature, for that reason, the current study does not intend to propose any sign, rather we hypothesize that *there is significant relation between board size and cash holdings (Hypothesis 4).*

The above scholars attempted to study effect of top management characteristics on firm cash holding but none of them created a study in Nigeria and Ghana using pharmaceutical firms. The scholars also used Board size, Board independence, CEO duality, to proxy top management but this study used non-executive directors, managerial ownership and board diligence in addition to the previously used ones by prior studies and extended the study for a long period of time (10years) spanning from 2010 to 2019. Moreover, there is no indigenous study that has used non-executive directors, board diligence and managerial ownership to proxy top management characteristics. This is the knowledge gap this study intends to address therefore contributing to the existing literature. These are the rationale behind this study. Hence this diagram



Source: Researchers' conceptual Framework (2021)

Theoretical Framework: Corporate cash holding policies can be explained by different economic theories such as tradeoff theory, the pecking order theory, the free cash flow theory, Agency theory and financial hierarchy theory. But this study was anchored on trade-off theory.

Trade- off theory: Trade- off theory postulates that transaction costs and precautionary issues are reasons to hold cash, thus suggesting the existence of an optimal level of cash. According to the trade-off model, which assumes that the management of a firm is concerned with the maximization of shareholder value, the goal would be to reach an optimal level of cash holdings by weighing the marginal costs and benefits of holding cash (Ferreira & Vilela, 2004). First, cash holdings effectively reduce the likelihood of financial distress, because in case the firm faces unexpected losses or capital market constraints, cash can act as a safety reserve. Put more simply, the holding of cash can serve as a buffer between the firm's internal resources and the funds that would have to be generated externally, which as a result minimizes costs. Finally, sufficient cash holdings can ensure the pursuance of an optimal investment policy, especially when the firms' access to external capital markets is limited (Ferreira & Vilela, 2004). Trade-off theory shows that transaction costs and precautionary motives are reasons to hold cash. The transaction costs discussion posits that external financing is costlier than retention of available cash. This happens because costs of external financing involve fixed and variable costs associated with the amount of capital raised. Firms can be forced to give up on an investment if they have problems of cash shortage. Thus, firms would hold cash until the marginal cost of cash shortage equals the marginal cost of cash holding. As pointed out previously, trade-off theory suggests the existence of optimal level of cash. Generally, firms hold cash for various motives such as to meet operational needs of the business or unanticipated cash demands that require additional amount to be kept for a firm's safety (Damodaran, 2005).

Empirical Studies

In a study done by Arora (2019), he examines the pattern of cash holdings of 266 Indian companies comprised in the S&P BSE 500 index for the period 2005–2015 to understand the factors that influence the level of cash balances, to estimate the amount of excess cash held by these companies and to analyze how these companies spend their excess cash. The sample companies hold approximately 12 per cent of their total assets as cash in 2015. The pattern of cash holdings of the sample companies is supported by the static trade-off and the financing hierarchy model. Consistent with earlier evidence, firms with large cash balances have strong growth opportunities, larger cash flows, higher cash flow volatility, higher leverage, higher level of promoter holding and belong to the government-owned sector. Companies that have more liquid assets other than cash have more tangible assets and pay more to their shareholders hold lower cash balances. However, contrary to earlier evidence, size of the firm is not related to the amount of cash holding. Further, firms with large cash balances have higher leverage. The study does not find association of cash holding with many other variables found to have association with cash holding in developed markets. A large number of the firms in the sample hold cash in excess of what is predicted on the basis of firm's characteristics. These companies manage their cash balances in a manner that is not consistent with maximization of shareholders' wealth.

Similarly, Thanh (2019) investigates whether there is an optimal cash holding ratio, in which firm's performance can be maximized. The threshold regression model is applied to test the threshold effect of the cash holding ratio on firm's performance of 306 non-financial companies listed on the Vietnam stock exchange market during the period of 2008–2017. Experimental results showed that a single-threshold effect exists between the ratio of cash holding and company's performance. A proportion of cash holding within a threshold of 9.93% can contribute to improvement of the company's efficiency. The coefficient is positive but tends to decrease when the cash holding ratio passes the 9.93% check point, implying that an increase in cash holdings ratio will continue to diminishment of efficiency eventually. Therefore, the relationship between cash holding ratio and firm's performance is nonlinear. From this result, this paper provides policy implications for non-financial companies listed on the Vietnam stock exchange market in determining the proportion of cash holding flexibly. In detail, non-financial companies listed on the Vietnam stock exchange market should not keep the cash holding ratio over 9.93%. To ensure and enhance the company's performance, the optimal range of cash holding ratios should be below 9.93%.

Following the same line of argument, Siddiqua, Rehman and Hussain (2019) examined the effect of corporate governance on cash holdings of Financially constrained (FC) and financially unconstrained (FUC) firms using CEO duality and board independence as variables and found that the firms which hold cash above the optimal level of cash holdings have higher speed of adjustment than the firms which hold cash below the optimal level. Financially constrained (FC) firms also adjust their cash holdings faster than financially unconstrained (FUC) firms but high speed of downward adjustment does not remain persistent after financial constraints are controlled. Findings of this study reveal this asymmetric adjustment in above and below target firms and extend these results in FC and FUC Pakistani listed firms, respectively.

In a study done by Tahir, Ali, Muhammad and Adnan (2018), they provided a review of corporate governance and cash holdings because strong corporate governance is necessary for the efficient utilization of firm's liquid resources such as cash, to minimize the agency cost of high cash holdings and to improve the value of cash. They provide a literature review of corporate governance and cash holdings through a conceptual and theoretical argument rather than empirical research. They reviewed empirical and theoretical work surrounding key corporate governance variables and identifies avenues for future research. They find that corporate governance mechanisms and cash holdings have received much attention during the last two decades. However, the significant role of corporate governance (both country-level and the firm-level) in controlling the entrenched behavior of the managers is discussed separately in the literature. The combined effect of both country-level and the firm-level governance is lacking in the cash holdings literature. Additionally, their study has found that much attention is paid to the developed markets, only a few focused on the developing markets regarding cash holding literature although, the agency problems are high in developing markets.

Similarly, Orjinta and Orjinta (2018) examined the effect of board attributes on cash holdings of firms in post-recession era in Nigeria for a period of ten years from 2008 to 2017. Their results revealed that board composition, CEO Duality and managerial ownership have positive and statistical significant effect on cash holding respectively while board size and board diligence have negative and insignificant effect on cash holdings. They concluded that firms with more independent directors are more likely to increase cash reserve for their operating activities while a firm where one person is serving both functions as the Chairman of the board and Chief Executive Officer hold more cash than their counterparts.

In the same vein, Ajanthan and Kumara (2017) examined the influence of corporate governance practices on cash holdings of Sri Lankan listed companies. It develops hypotheses about the relationship between cash holding and corporate governance practices such as size, frequency of meetings, independence, independent chair and gender diversity. Using multiple regression analysis on data collected from the corporate annual reports of 90 listed companies, the study finds that corporate governance practices such as board size and gender diversity have a significant negative influence on cash holdings as well as independent chair has a significant positive influence on cash holdings. However, there is no evidence that board meetings affect cash holding in Sri Lankan companies. The study contributes to the literature on the factors that make variation in the amount of cash holding of the listed company and it may be useful for financial managers, business analyst, financial controller, operations managers, investors, financial management consultants and other stakeholders.

Methodology

Ex-post facto research design was used to describe the effects of top management characteristics on cash holding of twelve quoted pharmaceutical firms in Nigeria and Ghana by using existing secondary data on the selected proxies from financial statement of the quoted firms which cannot be manipulated or altered by the researcher. Cash holding was measured using cash and cash equivalent while non-executive directors, board size, managerial ownership, and board diligence were adopted as proxies for top management. The model adopted in this study assumed a linear relationship between top management characteristics and cash holding and panel least square was adopted for the purpose of hypothesis testing and was guided by the following linear model:

$$CAHD_{it} = \beta_0+\beta_1 NED_{it} + \beta_2 BDD_{it} + \beta_3 MGO_{it} +\beta_4 BDSZ + \varepsilon_{it} \ldots\ldots\ldots\ldots 1$$

Where,

CAHD stands for Cash Holding, measured using cash and cash equivalent to total assets, NED stands for non-executive directors measured as *the ratio of independent directors to the total* *number of directors*, BDSZ connotes board size measured as *the total number of directors on the board,* MGO stands for managerial ownership *measured as the percentage of total shares held by managers and* BDD *stands for Board diligence expressed on the number of meetings held during the financial year*

Estimation Results and Discussion of Findings

The study investigated the causal effect that exists between top management variables and cash holdings of listed pharmaceutical firms between 2010 and 2019. The study carried out some preliminary tests like descriptive statistics, correlations and variance inflation factor (VIF) analysis. Finally, the study used panel regression analysis in obtaining functional causal effect between cash holding of pharmaceutical firms and top management attributes like non-executive directors (NED), board size (BDSZ), managerial ownership (MGO) and board diligence (BDD). Note that regression result was used to either reject a hypothesis or accept it based on its p-value.

Descriptive Statistics Analysis (Nigeria and Ghana)

The Table below shows the descriptive statistics of the selected pharmaceutical firms in both Nigeria and Ghana that make up our sample.

Table 4.1: Descriptive Statistics Result

	CAHD	NED	BDSZ	MGO	BDD
Mean	23.56200	0.470417	6.808333	19.00558	8.308333
Median	21.54500	0.500000	6.000000	14.80500	9.000000
Maximum	48.41000	0.850000	9.000000	68.51000	11.00000
Minimum	10.01000	0.240000	5.000000	0.000000	5.000000
Std. Dev.	10.46387	0.137666	1.361511	15.05223	1.150782
Skewness	0.339903	0.806911	0.711122	0.690581	-0.721442
Kurtosis	1.797292	3.435173	1.902007	3.006957	3.646673
Jarque-Bera	9.543213	13.96899	16.14184	9.538283	12.50050
	0.008467	0.000926	0.000312	0.008488	0.001930
Probability **	*	*	**	*	
Observations	120	120	120	120	120

Source: researcher's summary of descriptive result (2021) using E-view 10

The descriptive statistics result in table 4.1 above provides some insight into the nature of the selected pharmaceutical goods company in both Nigeria and Ghana that were used in the study. The aim of the descriptive statistics was to describe the general distributional properties of the data, to identify any unusual observations or any unusual patterns of observations that may cause problems for later analyses to be carried out on the data. The researcher sought to establish the central tendency and distribution of top management characteristics and cash holdings among the 12 selected pharmaceutical goods company in both Nigeria and Ghana. This section provides the descriptive statistics as per the objective of the study.

Firstly, cash holding which was the dependent variable was measured as the ratio of cash and cash equivalent to total assets. It was observed that over the period under review, the sampled firms have average positive cash holding of 23.56. Within the period under review, the firms have maximum cash holding value of 48.41 and minimum value of 10.01. The minimum cash holding is 10.01% of net assets. These results showed that on average pharmaceutical firms in both Nigeria and Ghana held 23.56% of their assets as cash and cash equivalents (CAHD). The standard deviation for cash holding was 10.46 while the skewness for cash holding was 0.3399 implying that data on cash holding were skewed to the right hence most values were bunched to the left of the distribution. The kurtosis for cash holding was 1.797 that is less than 3 hence the distribution is said to be platykurtic and having few outliers. The Jacque-Bera statistics of 9.54 alongside its p-value (0.000) indicates that the data satisfies normality and were evenly distributed.

Non-executive director was observed to have a mean value of 0.470 which means that the average percentage of independent directors in the board is 47% which suggest that 47% of board members are non-executive directors (independent directors) while 53% are executive directors. Board size was observed to have a mean value of 6.80 which suggest that board size has about 6.8 members with the maximum value of 9 members and minimum value of 5 members in the board. That is to say that the minimum and maximum number of members in the board is 5 and 9 respectively. The summary descriptive statistics in table 4.1 above shows that the managerial ownership mean value stood at 19% while its maximum and minimum values stood at 68.5% and 0% respectively. This indicates that the maximum shareholding by managers was 68.5% shares out of the total shares of the firms which means that majority of the shares were held by managers in the pharmaceutical firms while in some firms, managers do not have any shareholding at all. Again board diligence expressed in the frequency of meetings indicates that on average additional one sitting of the board members affects the firm cash holding decisions.

Generally, the JB Probability values of 0.0000 shows that all the variables are normally distributed at 1% level of significance except cash holding and managerial ownership that were normally distributed at 5% level of significance respectively. It is an indication that all variables are approximately normally distributed.

Pearson Correlation Matrix (Nigeria and Ghana)

Pearson's correlation matrix was applied to check the degree of association between top management components and cash holdings of quoted pharmaceutical firms in both Nigeria and Ghana so as to determine the nature or degree of association i.e. positive or negative correlation and the significance of the relationship between dependent variable (cash holdings) and independent variables. Therefore, in examining the association among the variables, we employed the Pearson correlation coefficient (correlation matrix) and the results are presented in the table 4.2.2 below.

Table 4.2.2: Correlation Analysis Result (Nigeria and Ghana)

	CAHD	NED	BDSZ	MGO	BDD
CAHD	1.000000				
NED	0.003254	1.000000			
BDSZ	0.075203	0.606134	1.000000		
MGO	-0.174682	0.150593	0.174637	1.000000	
BDD	0.092750	-0.276114	-0.187227	0.088591	1.000000

Source: researcher's summary of correlation result (2021) using E-view 10

The above results show that there exists a positive but very minimal weak association between cash holding and non-executive directors (CAHD/NED= 0.0032) while another positive and very weak association exists between cash holding and board size and board diligence (CAHD/BDSZ and BDD = 0.075 and 0.092). There exists a negative and mild association between cash holding and managerial ownership (CAHD/MGO = -0.1746). Therefore, in checking for multicollinearity, the study noticed from the correlation table above that no two explanatory variables were perfectly or highly correlated and thereby ruled out the case of having an outlier. This indicates the absence of multi-collinearity problem in the model used for the analysis.

Test of Multicollinearity or Variance Inflation Factor (VIF)

Multicollinearity was tested by computing the Variance Inflation Factor (VIF) and its reciprocal or the tolerance. To further check for multi-collinearity problem or to know whether the independent variables used are perfectly correlated, we conducted Variance Inflation Factor (VIF) and the result is provided below in table 4.3:

Table 4.3: Variance Inflation Factor Result (Nigeria and Ghana)

VIF RESULT

Variance Inflation Factors
Date: 10/22/20 Time: 23:15
Sample: 2010 2019
Included observations: 120

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	90.18159	101.6220	NA
NED	78.60031	21.26477	1.664613
BDSZ	0.773100	41.98340	1.601451
MGO	0.004170	2.752916	1.055703
BDD	0.746762	59.19226	1.105107

Source: Researcher's summary of VIF result (2021)

As can be observed from the result of VIF in table 4.2.3 above, the mean value of the independent variables coefficient is less than 10, therefore the effect of multi-collinearity is negligible. This implies that there was no multicollinearity problem with the variables thus all the variables were maintained in the regression model. Our finding also justifies the use of panel least square estimation techniques. Hence, any recommendations made to a very large extent would represent the characteristics of the true population of study and thus can be used to draw conclusion.

Comparative Analysis of Countries Specific Regression Results

The result provides an insight into the nexus between top management variables and the dependent variable (cash holdings) of pharmaceutical firms quoted across these 2 West African countries (Nigeria and Ghana). We examine it variable by variable.

Table 4.4.: Summary of country specific analysis

Variables	**Nigeria**		**Ghana**	
	Coeff. Value	P-value	Coeff. Value	P-value
Non-Executive Directors (NED)	-50.78	0.5675	-12.93	0.3932
Board Size (BDSZ)	1.596	0.2568	1.180	0.6097
Managerial Ownership (MGO)	-0.231	0.0321	-0400	0.0343
Board Diligence (BDD)	2.235	0.0477	-1.332	0.4043
R-squad (Adj)	42%		20%	

Source: Researchers' Summary of country specific result (2021)

The country specific analysis was carried out to examine the effect of top management characteristics on cash holdings of pharmaceutical firms of each country selected for the study. This will enable us examine the impact each country top management characteristics and health sector system plays on cash holdings of pharmaceutical firms quoted in their stock exchange. From the result above, the study observed that top management variables jointly affect about 42% of cash holding policy in Nigeria while jointly affect about 20% of what happened in Ghana pharmaceutical firms. The result revealed that all top management characteristics variables put together, jointly affect the level of cash holding which was evidenced by the t-values. The joint effect was more pronounced in Nigeria firms than Ghana firms. This indicates that top management characteristics in Nigeria has about 42% chances of improving cash holding of Nigeria pharmaceutical firms while in Ghana, it can only improve cash holding by about 20% when measured using ratio of cash and cash equivalents to total assets. In other words, Nigeria and Ghana top management team have the tendency of improving holding cash to net assets when adequate measures are put in place to manage it.

From the summary of comparative result in table 4.4 above, **non-executive director** was seen to have a negative coefficient values for both Ghana and Nigeria which was statistically insignificant for both countries. That is to say that non-executive director is not a very vital factor that affects companies' cash holding policy. In the same vein, **board size** was seen to have positive and insignificant effect on both Nigeria and Ghana pharmaceutical firms. Both negative and significant effect was documented against **managerial ownership** for both Ghana and Nigeria which was statistically significant at 5% level of significance. That is to say that when shareholders' interests are well protected, they are more confident to allow firms hold lesser cash reserves. As the sufficient cash holding allows firms to catch potential investment opportunities. Finally, **Board diligence** was found to have positive and significant effect on Nigeria firms which was statistically significant at 5% level of significance while a negative and insignificant effect was documented for Ghana pharmaceutical firms. This implies that number of meetings should be given priority in Nigeria settings while in Ghana, it may be ignored.

Conclusion and Recommendations

The relationship between the variables of top management characteristics and cash holdings were examined in this study. We discovered that all the variables of top management characteristics among Ghana firms were generally insignificant except managerial ownership. Also, empirical results indicate that board diligence and board size were positively related to cash holdings in Nigeria while non-executive directors and managerial ownership were found to be negatively related to cash holdings of pharmaceutical firms in Nigeria. However, findings of this study have laid some groundwork upon which a more detailed evaluation of firm cash holdings could be based. We believed that findings of this study filled a vacuum in the existing literature and provide support to the board to comprehend how internal governance mechanisms affect cash holdings of firms with reference to pharmaceutical firms in Nigeria and Ghana.

Based on the findings above, we therefore recommend that the percentage of managerial ownership in shareholdings of pharmaceutical firms should be decreased to effectively improve cash holding capabilities of the firms. Moreover, pharmaceutical firms should determine their optimal cash level by striking a balance between the benefits and costs of holding cash. Thus high or low levels of cash holdings can be indications of weak or strong top management characteristics and therefore we conclude that cash holdings should remain a priority and of utmost paramount in pharmaceutical firms in both Nigeria and Ghana.

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