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Full Length Research Paper

Relevance of optimal cash level to profitability of firms in Nigeria manufacturing industry

INYIAMA Oliver Ike*, NWEZE Augustine Uchenna and NZE Donatus Okechukwu

Department of Accountancy, Enugu State University of Science and Technology, Enugu State, Nigeria.

*Corresponding author E-mail: inyiamaik@yahoo.com

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The study assessed the effect of optimal cash level on Return on Investment (ROI) of some selected Nigeria brewery firms. *Ex Post facto* research design was adopted and secondary data were obtained from the annual report and financial statements of Nigerian Breweries Plc, Guinness Nigeria Plc and international Breweries Plc for a period of eleven years (2005-2015). The objectives are to ascertain the effect of cash holdings on ROI. Hypothesis was formulated and analyzed, using simple regression analysis. The result reveals that corporate optimal cash level depreciates return on investment. The implication is that brewery firms' management should hold only cash that is necessary at every point in time. Therefore, the study recommends that firms should strike at balancing their cash and cash levels so as to maintain profitability and remain relevant amidst stern competition in the industry.

Key words: Assets, investment, brewery, returns, cash.

INTRODUCTION

It is on record that over a decade now, there had been lots of mergers and acquisitions in the brewery industry which is geared towards repositioning of the firms for enhanced product quality and financial performance, through increased patronage. The major shareholders and other stakeholders have also diversified their investment portfolio even outside their geographical locations (Okwo et al., 2014a). The brewery industry has been the largest source of Foreign Direct Investment (FDI) in the country; apart from the telecommunication industry, and oil and gas sector. Such investment includes Heineken's investment in Nigeria Breweries PLC, which is a huge testimony of the massive investment in the industry (Okwo et al., 2012b).

At about the 1980's, Nigeria had very many surviving brewery firms that were adjudged healthy in terms of financial and operational performance. Subsequently in the late 1990's, the brewery firms gradually started folding up leaving only a handful of struggling brewery firms in the hitherto very busy and flourishing industry. NSE Factbook (2010) states that the number of operational brewery firms has reduced from over thirty in the early 1980's to about ten as at 2006 and as at 2010, only seven are quoted on the Nigeria Stock Exchange, out of which four are operational; with Nigeria Breweries PLC, Guinness Nigeria PLC and International Breweries PLC taking the lead.

The finance manager, who knows the interplay of cash/liquidity and profitability in a manufacturing concern, must pursue a cash management policy that encourages the maintenance of cash just enough for the day's transaction while making provisions for other reasons of holding cash such as precautionary and speculative motives. Determination of appropriate level of cash balance is not only necessary to optimize cash utilization but also to decide the level of investment in marketable securities. It is worth stressing that the optimal level cash should be larger of (i) the transaction balances required when cash management is efficient and (ii) the compensatory-balance requirements of commercial banks with 'which the firm has deposit accounts. This task is so important that carrying of excess cash balance entails loss of interest earnings to the firm and thus causes low profitability and maintaining a small, cash balance renders the firm's liquidity position weak, although a higher profitability is ensured. Hence, determination of suitable level of cash holding involves risk-return trade-off (Homework1.com).

Johnson and Aggarwal (1988) defined cash management as involving management of firms' money in order to attain maximum interest income on idle funds. To prevent breaks or gaps in the trading cycle due to lack of cash, administrators may need to work out the cash amount best suited to their level of activity, plan the timing of the relevant payments and collections and draw up a policy of investment in assets with high liquidity that can be converted to cash at a low transactional cost to serve as support for the treasury funds maintained by the company (Srinivasan and Kim, 1986).

The main objective that the researchers strive to address in this study is to assess the relevance of optimal cash level to profitability of firms in Nigeria manufacturing industry. A study of the Nigeria manufacturing industry is germane because of the economic importance of the sector to the growth and development of Nigeria. The importance is further strengthened by the colossal fall in the price of crude oil which made the Nigeria economy to witness abysmal collapse in revenue generation. The manufacturing and agricultural sectors are the alternatives that must be exploited for foreign exchange earnings.

Literature review

Abuzar (2004) empirically examines the relationship between profitability and liquidity, as measured by current ratio and cash gap (cash conversion cycle) on a sample of joint stock companies in Saudi Arabia. Using correlation and regression analysis, the study found significant negative relation between the firm's profitability and its liquidity level, as measured by current ratio. This relationship is more evident in firms with high current ratios and longer cash conversion cycles at the industry level; however, the study found that the cash conversion cycle or the cash gap is of more importance as a measure of liquidity than current ratio that affects profitability. The size variable is also found to have significant effect on profitability at the industry level. Finally, the results are stable over the period under study.

David and Sibilkov (2009) reports that cash holdings are more valuable for financially constrained firms than for unconstrained firms. We examined (i) why this is so and (ii) why some constrained firms appear to hold too little cash. Our results indicate that greater cash holdings are associated with higher levels of investment for constrained firms with high hedging needs and that the association between investment and value is stronger for constrained firms than for unconstrained firms. These findings imply that higher cash holdings allow constrained firms to undertake value-increasing projects that might otherwise be bypassed. We further found that some constrained firms exhibit low cash holdings because of persistently low cash flows. Overall, our findings support the view that greater cash holdings of constrained firms are a value-increasing response to costly external financing.

Amarjit et al. (2010) seeks to extend Lazaridis and Tryfonidis's findings regarding the relationship between working capital management and profitability. A sample of 88 American firms listed on New York Stock Exchange for a period of 3 years from 2005 to 2007 was selected. We found statistically significant relationship between the cash conversion cycle and profitability, measured through gross operating profit. It follows that managers can create profits for their companies by handling correctly the cash conversion cycle and by keeping accounts receivables at an optimal level. The study contributes to the literature on the relationship between the working capital management and the firm's profitability.

Akinyomi (2014) posits that success of any business venture is predicated on how the management has planned and controlled its cash flows. Cash shortage will disrupts the firm's smooth operation and can even lead to insolvency. Excessive cash will tie down unnecessarily long-term capital with a result that the return on capital employed will be low. Thus, cash management assumes more significance than other current assets because cash is the most important asset that a firm holds. However, literature revealed that only limited studies have investigated the relationship between cash management and profitability in Nigeria. Therefore, this study examined the relationship between cash management and profitability in the Nigerian manufacturing firms. Correlation and regression analysis were carried out. The results reveal a positive and significant relationship between CCC and ROE on one hand and a non significant negative relationship between CCC and ROA. From the results of the study, it is recommended that future researchers should expand the scope of their studies to include multiple sectors of the economy.

Ogundipe et al. (2012a) sheds light on the empirical relationship between cash holding and firm characteristics. A sample of 54 Nigerian firms listed on Nigerian Stock Exchange for a period of 15 years (from 1995-2010) was selected. This study applied co-relational research design. The results show that cash flow, net working capital, leverage, profitability and investment in capital expenditure significantly affect the corporate cash holdings in Nigeria. The study, therefore, contributes to the literature on the factors that determine the corporate cash holdings. The findings may be useful for the financial managers, investors, and financial management consultants.

Uwuigbe et al. (2012) states that cash has always been disregarded in financial decision making since it involves investment and financing in short term period. However, it is an important component in firm financial management decision. This study therefore investigates empirically the relationship between cash management and profitability in listed manufacturing companies in Nigeria. Cash conversion cycle is used as the measure for cash management as used in Raheman and Nasr (2007). Current ratio, debt ratio and sales growth were used as control variables. This study utilizes secondary data while Pearson's correlation and regression analysis were used in analyzing the data for a sample of 15 listed manufacturing companies in Nigeria between 2005 and 2009. The results of the empirical findings show that there is a strong negative relationship between cash conversion cycle and profitability of the firms. It means that as the cash conversion cycle increases it will lead to decreasing profitability of the firms. The study therefore recommends that managers can create a positive value for the shareholders by reducing the cash conversion cycle to a possible minimum level and also accounts receivables should be kept at an optimal level. This study will also help companies in Nigeria see the need for cash management techniques.

Owolabi and Obida (2012) states that liquidity management, especially at the wake of the global financial crisis, has become a major source of concern for business managers as bank loans are becoming too expensive to maintain as a result of tightening of both the local and international financial market and the reluctance of the public to invest in the share of companies sequel to the crash of the capital market. This research work measures the relationship between liquidity management and corporate profitability using data from selected manufacturing companies quoted on the floor of the Nigerian Stock Exchange. The result of the study was obtained using descriptive analysis and the finding shows that liquidity management measured in terms of the companies Credit Policies, Cash Flow Management and Cash Conversion Cycle has significant impact on corporate profitability and it is concluded that managers can increase profitability by putting in place good credit policy, short cash conversion cycle and an effective cash flow management procedures.

METHODOLOGY

Ex post facto research design was adopted for the study. The population of the study is the quoted Nigeria brewery firms in the brewery industry, which includes: Champion Breweries Plc, Guinness Nigeria Plc, International Breweries Plc, Jos International Breweries Plc, Nigeria Breweries Plc and Premier Breweries Plc. However, the study made use of corporate annual reports of Nigerian Breweries Plc, Guinness Nigerian Plc and International Breweries Plc as its representative sample size. The three brewery firms were selected considering their position as market leaders in the industry in terms of geographical spread, asset base and product lines.

Model specification

The model is a simple regression model which states that the dependent variable Y is a function of the independent variable, x. Mathematically, $Y = f(xi)$. Simple regression analysis was considered suitable because the study has a single dependent variable (Return on Investment) with a single independent variable (Optimal Cash Level). EView 8.0 statistical software was applied in running the data analysis.

Such that $\mathrm{Y} = \beta_0 + \beta_1 \mathrm{x}_1 + \mathcal{E}_t$

In this study, we have that

$$\mathrm{ROI_t} = \beta_0 + \beta_1 \mathrm{OCL}_1 + \mathcal{E}_t$$

Where:
ROI_t = Return on Investment at time t, (Dependent variable)
OCH_1 = Optimal Cash Level at time t, (Independent variable)
β_0 = Constant
$\beta_{1,}$= the regression coefficient.
$\mathcal{E}_t$= Stochastic error associated with the model.

RESULTS AND DISCUSSION

The descriptive statistics result (Table 1) shows that the average Return on Investment of the selected firms stood at 0.14% with associated standard deviation of 0.37%. The values range from -0.55% to 0.84% for the period under review. The average value of Optimal Cash Level stood at 6.36 with associated standard deviation of 0.64. The Jarque-Bera goodness of fit test which is a combined measure of Skewness and Kurtosis of the dataset indicates that Optimal Cash Level follow a normal and smooth distribution within the period under study.

Test of Hypothesis: Optimal Cash Level (OCL) does not significantly affect Return on Investment (ROI) of Nigeria Brewery firms.
Level of significance (α) = 0.05
Decision rule: Reject the null hypothesis if the p-value is less than 0.05; otherwise, do not reject.

The empirical result (Table 2) shows that an increase in Optimal Cash Level (OCL) of Nigeria Brewery firms by a unit will increase the value of Return on Investment by about 26.1%. The findings are in tandem with that of David and Sibilkov (2009) and Akinyomi (2014), while our finding disagrees with the findings of Owolabi and Obida (2012) and Uwuigbe et al. (2012). It was observed that the findings from most of the research carried out in Sub-saharan Africa produce outcomes that are most times similar; due to their economic, social and political

Table 1. Descriptive statistics of the study variables.

Variable	ROI	OCL
Mean	0.137879	6.354740
Median	0.260000	6.341364
Maximum	0.840000	7.342564
Minimum	-0.550000	5.145715
Std. Dev.	0.365409	0.639851
Skewness	-0.539098	-0.166940
Kurtosis	2.613143	1.822080
Jarque-Bera	1.804225	2.061084
Probability	0.405712	0.356813
Sum	4.550000	209.7064
Sum Sq. Dev.	4.272752	13.10109
Observations	33	33

SOURCE: E-views 8.0 Statistical Software

Table 2. Regression analysis.

Dependent Variable: ROI
Method: Least Squares
Date: 01/20/17 Time: 03:51
Sample: 0001 0033
Included observations: 33

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CAH	0.260530	0.091274	2.854366	0.0076
C	-1.517724	0.582869	-2.603886	0.0140
R-squared	0.208121	Mean dependent var		0.137879
Adjusted R-squared	0.182577	S.D. dependent var		0.365409
S.E. of regression	0.330371	Akaike info criterion		0.681493
Sum squared resid	3.383501	Schwarz criterion		0.772190
Log likelihood	-9.244630	Hannan-Quinn criter.		0.712010
F-statistic	8.147404	Durbin-Watson stat		1.158839
Prob(F-statistic)	0.007622			

ROI = -1.518 + 0.261OCL; SE = (0.091) (0.583); t = [-2.604] [2.854] ;* R-squared = 0.208; Adjusted R-squared = 0.183; D-W stat. = 1.159. Source: EViews 8.0 Statistical Software

similarities. When the results are compared, it is revealed that studies carried out in Europe and America, produce a more logical outcome that accords to *a priori* expectations.

The R-square value of 0.208(20.8%) indicates that only about 20.8% of the total variations in Return on Investment (ROI) is attributable to Optimal Cash Level in Nigeria Brewery firms. The remaining 79.2% is attributable to other relevant variables not included in the model. The Durbin-Watson statistic value of 1.159 following the rule of thumb suggests that the test is inconclusive of the presence of serial correlation in the model.

Conclusion

The empirical findings reveal that cash holdings have significant positive effect on return on investment of Nigeria Brewery firms. Therefore, Optimal Cash Level was found to have significant effects on Return on Investment (ROI) of firms in Nigeria brewery. The implication is that cash holding should be given maximum and efficient consideration in the firms' investment portfolio. However, after a careful study of the findings, the researchers recommend that managers of brewery firms in Nigeria should maintain healthy cash holdings in their firms so as to maintain healthy and profitable returns from their investments and corporate life of the firms.

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