

ASSESSING THE IMPACT OF LIQUIDITY AND PROFITABILITY RATIOS ON GROWTH OF PROFITS IN PHARMACEUTICAL FIRMS IN NIGERIA

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ABSTRACT: *This paper assesses the impact of liquidity and profitability ratios on growth of profits in Pharmaceutical firms in Nigeria. Eight ratios: acid test, current ratio, net working Capital. Return on assets, returns on capital employed, returns on equity, gross profit ratio and net profit ratio were regressed against the dependent variable growth of profit. Hausmann test was conducted to choose between Fixed Effect and Random Effects model. Results justified the use of Fixed Effect model. Test results indicate significant contributions of all the variables to profit growth of pharmaceutical companies in Nigeria implying that continued improvement in the variables can lead to increases in growth of profit by the Pharmaceutical firms.*

KEYWORDS: Liquidity, Profitability, Return on Equity, Return on Assets, Working capital, Return on Capital Employed, Growth of Profit

INTRODUCTION

Profit is the main motive of every business organization. Shareholder desire for wealth maximization cannot be achieved without profit. Profit ensures that the business continues as a going concern. The existence and survival of any business is dependent on the level of profit. On the other hand business is financed by both equity and borrowed funds. These liabilities are in the form of short term and long term obligations. Financial ratios help investors and other users of the financial statement to better understand and gauge the performance of the entity. Liquidity ratio gives an insight of the ability of the firm to meet its maturing current obligation and pay off creditors as the loan matures and is essential for firm' existence. Liquidity impacts financial cost, growth, risk level and is a determinant of the market value of the firm. The effects of liquidity on the performance of the firm can lead to false conclusion that it is the determinant of the level of profitability and growth of the firm. This conception has motivated myriads of theoretical and empirical studies to unravel the impact of liquidity on firm's profitability. The extent of influence of profitability and liquidity on the growth and performance of the firm has been controversial and no census has been reached. There is mixed result as to the influence of these factors to the success or failure of the firm. The unabated controversy has resulted in many theoretical and empirical studies which were conducted by k.Smith (1980), Shin and Soenen (1998) M, Deloof (2003),A. Eljelly (2004), Owolabi and Obida (2012) amongst others. Despite these efforts by scholars and practitioners, the nature of liquidity impact on profitability is still not entirely understood. Chamberlain and Gordon [1989] maintain that firm decisions about liquidity to a large extent influence its achievements. This conception was followed, among others by Jose, Lancaster and Stevens (1996)] with the argument that liquidity management is fundamental first of all for growing companies

The relationship between liquidity and profitability is controversial. The findings of some studies draw the conclusion that liquidity and profitability are negatively related while others assert a positive relationship.

The proposition of a negative relationship was investigated by M. Deloof (2003) using cash conversion cycle to study the effect of liquidity on profitability. In contrast, Samiloglu and Demirgunes used three variables namely: account receivable, inventory and cash conversion cycles to study the relationship between liquidity and profitability and concludes it is negative. This conclusion was also supported by Zariyawati, Annuar, Taufiq and Rahim [2009] amongst others. On the other hand Padachi [2006] noted a positive relation between liquidity and profitability. The debate was further exacerbated by some researchers who argue that relationship between liquidity and profitability might be both positive and negative. Narware [2004] for instance using account receivable, inventory, accounts payables, cash conversion cycles and current ratio investigated the liquidity influence on the firm's profitability and concluded that the nature of relationship is different and a function of the liquidity variables. This lack of consensus has motivated further research. Furthermore, most prior empirical research focused on advanced countries with little or no research in third world countries like Nigeria with different cultural and economic background. This research work aims at replicating previous studies in a third world setting. Secondly, the emerging economic scenarios coupled with technological advancement, new accounting standards that impacts on reporting and the reporting behavior of firms calls for further research in previous study areas. This work therefore examines the influence of profit and liquidity on the growth of Pharmaceutical companies quoted in the Nigeria Stock Exchange considering the adoption of IFRS in Nigeria. The objective of the study is to assess the influence of liquidity and profitability on the growth of profit of pharmaceutical firms in Nigeria.

LITERATURE REVIEW/THEORETICAL BACKGROUND

Theoretical Framework

Pecking Order theory

Pecking order theory tries to capture the cost of asymmetric information and states that companies prioritize their sources of financing (from internal financing to equity) according to the law of least effort, or of least resistance preferring to raise equity as a financing means of 'last resort'. This implies that internal financing is used first; when it is depleted, then debt is issued and when it is no longer sensible to issue more debt, equity is issued. The theory maintains that businesses adhere to a hierarchy of financing sources and prefer internal financing when available, and debt is preferred over equity if external financing is required (equity implies issuing more shares which meant bring external ownership into the firm). Thus the form of debt a firm chooses can act as a signal of its need for external financing. The pecking order theory is popularized by Myers (1984) when he argues that equity is less preferred means to raise capital because when managers (who are assumed to know better about the condition of the firm than investors) issue new equity, investors believe that managers think that the firm is overvalued and managers are taking advantage of this over valuation. As a result investors will place a lower value to the new equity issuance. The conclusion of Myers and Majluf is that the market will attach no significance to issuance of new equity resulting in the circumvention by owners by taking recourse to internal financing. Further, in a situation where

external financing is essential, debt is perceived by the firm to be safer than equity since the market value does not change much over time

Prior empirical studies buttress this. The Titman and Wessels (1985) study shows that more profitable firms will tend to use less external financing thus providing support for pecking order theory (Caopeland, 1988:519), Event studies show that equity issue is interpreted as bad news by the market, with significantly negative announcement date effects on equity prices. Masults and Korwar (1986), Asquith and Mullins(1986), Kolodny and Suhler (1985) and Mikkelson and Patch(1986). This is consistent with Pecking order theory. A determinant of cash holding from the perspective of pecking order theory has been supported by other researches. Sebastian (2010) examine liquidity and solvency and finds that corporate liquidity and solvency interact through information, hedging, and leverage channels. The information and hedging channels increase equity-value of firms which helps to pay regular dividend and most importantly reduce volatility in cash flow. Frank & Goyel (2002) showed that larger firms are more organized to take decision followed by this theory. Smaller firms were not following this theory and as the smaller firms moved away from pecking order theory so, overall average moves further from the pecking order (owolabi; 2004). Soku (2008) while testing financial flexibility and capital structure of small, medium and large firms observed that, large mature firms prefer using internal funds and safe debt in order to recharge financial flexibility rather than issuing equity. In case of small firms though they have low leverage, in order to cope with lack of cash at hand, they prefer to issue equity and increase cash holdings. However he ends up with Financial flexibility hypothesis which refers firms hold cash and expect future cash flow, and that characterize their future investment plan and current ability to sort out financial constraints.

Trade- off Theory

In a perfect market, there is the generalized assumption that there is free entry and exit of firms, ease of raising funds and no transaction cost to the firm. Trade off theory explains that firms are financed partially by debt and partly by equity and states that there is an advantage in financing with debt, the tax benefit of debt , the cost of financing distress including bankruptcy costs . The marginal benefit of further debt declines as debt increases while the marginal cost increases so that the firm that is optimizing its overall value will focus on this trade-off when choosing how much debt and equity to use for financing. The trade-off theory suggests that firms target an optimal level of liquidity to balance the benefit and cost of holding cash. The cost of holding cash includes low rate of return of these assets because of liquidity premium and possibly tax disadvantage. The advantage of holding cash is that the firms save transaction costs to raise funds and does not need to liquidate assets to make payments. Additionally, the firm can use liquid assets to finance its operations and invest if other medium of funding are not available or unnecessarily exorbitant.

Clark's Theory of Profitability

One of the theories of profitability is postulated by Clark with an analysis of an economy ran without profit with clear future considerations. The underlying assumptions for such economy being perfect market conditions, static state, constant factors of production , absence of monopoly, not susceptible to change and rewards are according to management wage level... There is free flow of economic activities, perfect mobility and flow of all economic units in a frictionless environment; with all impediments to perfect competition dissolved. "The society acts and lives but does so in a changeless manner" (Siddiqi, 1971). Changes in any factor caused a tumor and subsequent adjustments that result in new equilibrium levels. Population

changes and capital will lead to commensurate changes in wages and interest rate while the economy will absorb the changes and revert to status quo ante of its static state. Also changes in production methods will cause disequilibrium in output and prices and if other producers adopt same technique will cause adjustment and new equilibrium level. In contrast, an economy driven by profit possess reverse characteristics, The ability of the economy to endure such changes is due to the competitive equilibrium dynamics of the free market. Competition, remarks Knight, has the “tendency to eliminate profit or loss and bring the value of economic goods to equality with their cost” (Knight, 1921).. A comparison of an economy driven by profit motive was made with that of a profitless economy with differences highlighted to identify the cause of profit. This approach was adopted by Schumber and Knight.. In comparison, Clark highlighted that economies driven by profit will not buffer such changes instantaneously as there will necessarily be a time lag. It is this frictional delay that the entrepreneur takes advantage of and makes his profit before equilibrium returns and consumes his profit. Profit is hence a transitional phenomenon: “untransformed increments of wages and interest” (Siddiqi, 1971), its temporary nature demands from the entrepreneur a dynamic endeavor to seek out or generate opportunities on which he can capitalize. This process is summed up in Clark’s statement that “dynamic forces, then, account today for the existence of an income that static forces will begin to dispose of tomorrow”(Siddiqi, 1971). Economies are dynamic, the five variables outlined by Clark are never static; population and capital are in constant growth, innovation in production and management of resources are continually researched and consumer demands changes continuously and subject to changes in taste, fashion, trends and bandwagon effect.. The entrepreneur thus finds permanence for as long as he can keep ahead of the changes, react before competitors and organize his efforts with sound knowledge of the market. Clark asserts that change drives profit. These changes yield a surplus in the market prior to equilibrium and they are the sought-after profits of the entrepreneur (Owolabi; 2004)

Schumpeter Theory of Profitability

Schumpeter developed a circular model patterned after Clark’s profitless economy but differs in detail from the static state model proposed by Clark .He postulated that departures from an ideally competitive environment and actual environment yields profit. Schumpeter selectively identifies the single notion of innovation as paramount, so that changes based upon innovation are the cause of profit. Gradual changes in population and capital would easily be anticipated by the market and hence present no opportunity for the entrepreneur. The specific areas highlighted by Schumpeter are innovations in commodity either by introducing new products or modifications to existing products, changes in new production methods, new sources of raw materials and changes in industrial organization. According to Schumpeter every business man is an innovator and breaking from competition to acquire monopoly which accrues profit until competitors catch up but before that is achieved he moves on to innovate more in other fields. Schumpeter did not see the entrepreneur’s reward as a surplus value but rather as a functional reward linked to his innovative ability (Siddiqi, 1971). The impact of innovation was huge, leading to gales of creative destruction as innovations caused old inventories, ideas, technologies, skills, and equipment to become obsolete. Schumpeter saw the model of perfect competition in which different companies sold similar goods at similar prices produced through similar techniques as immaterial to progress (Owolabi; 2004)

Conceptual Framework Liquidity

Liquidity is the ability to meet its short-term obligations using its most liquid assets. Liquidity is the ease with which a company can pay its bills and liabilities over the next year, especially if it must convert its assets into cash in order to do so. The factors affecting the liquidity requirements of a firm are nature and size of the business, growth and expansion activities manufacturing cycle, production policy, turnover of circulating capital, credit terms, operating efficiency and price level changes

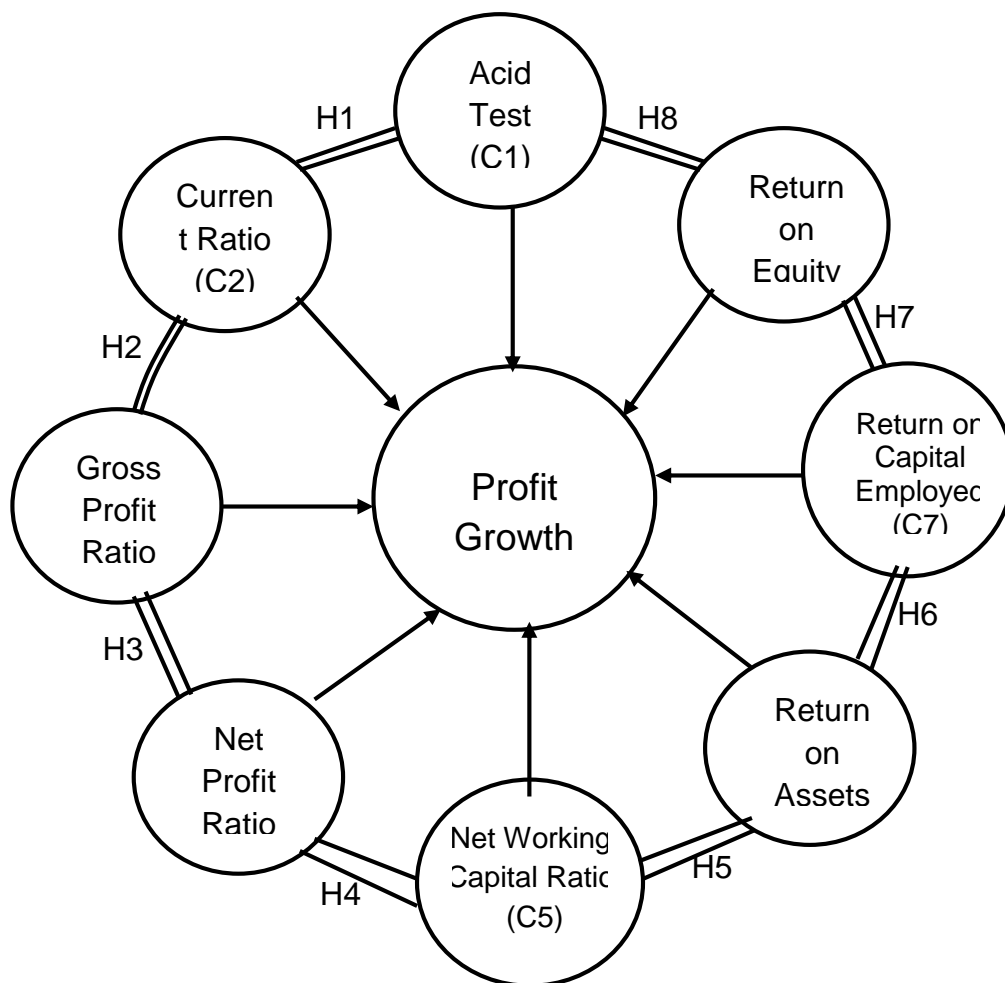
Profitability

Profitability is the business's ability to generate earnings as compared to its expenses and other relevant costs incurred during a specific period of time. The ability of a firm to continue to exist as a going concern depends on its ability to generate profit or attract equity capital and additional investors

Financial Ratios

Financial ratios are useful in identifying the key financial variables and the relationship between the variables with intent of giving meaning to the various relationships while ascertaining the strengths and weaknesses of the firm. Its major purpose is to assess the financial position and soundness of the firm to which the financial variables relate. A major deviation of the ratios from period to period would attract comments and investigations. The financial strength or weakness of a firm could be in its operation, financial position and prospects of a business hence its categorization. Financial ratios can be classified into profitability ratios, liquidity and efficiency ratios, investment ratios, turnover ratios or activity ratios and leverage ratios. This depends on the intent and purpose of the analyst. Financial ratios can be analyzed for a short period or long term depending on the need and purpose.

Profitability ratios can be classified into Returns on capital employed(ROCE), Return on Assets (ROA), Return on Assets (ROA), Return on Total Assets (ROTA) , Return on Equity (ROE) Return on sales with the variant of net profit percentage or gross profit percentage. These ratios are used to assess the level of profitability of a firm it is used by investors in combination with investment ratios to take investment decisions. Liquidity ratios are broadly classified into Current Ratio , Liquid ratio, Net working capital ratio, It is used to ascertain how liquid a firm is and its potentials in meeting maturing short term obligations Investment ratios are classified into Earnings per share (EPS), Price Earnings Ratio (P/E), Earnings Yield (EY), Dividend per share (DPS), Dividend yield (DY), Dividend cover (DC). It is used to make investment decisions. it determines the ability of the firm to attract additional equity capital. Activity ratios are Stock turnover, debtor turnover, Creditors day ratio and capital Turnover ratio. They are used to assess management efficiency in management of assets. Leverage ratios are capital gearing ratio and proprietary ratio used to test the solvency of the firm and the ability of the firm to meet interest costs and repayment schedules at the long term

Conceptual Framework figure**Empirical Review**

Prior empirical and theoretical research focused on the nature of relationship between liquidity and profitability. These studies returned mixed results with varied conclusion that liquidity has a negative relationship with profitability while other researches revealed the contrary. M. Deloof (2003), Samilogu and Demirgunees (2008), A.M.Zariyawati (2009), Annuar, Taufiq and Rahim amongst others concluded in their studies that the relationship between liquidity and profitability is negative. On the other hand Padachi (2006) claims that the liquidity influence on company profitability is positive. Narwes (2004) in complete departure to other findings concluded that the relationship between liquidity and profitability could yield positive or negative results depending on the liquidity variables deployed by the firm. Raheman and Nasr (2007) observed that profitability could be enhanced through improved management of working capital. In concurrence to these findings, Eljelly (2004) states that the management of working capital becomes even more important during crises periods as well as in good times. He further opined that the efficient management of the liquidity levels of a company is of extreme relevance for the firm's profitability and well being and that improved working capital have a potential impact of risk reduction and fulfillment of payment obligations in the short run. Current ratio indicates the capacity of the firm to offset maturing short term obligations. It is essential to sustain current ratio on the level which ensures timely fulfillment of debt obligations. Therefore, the firm should maintain a higher current assets level than current

liabilities. A decrease in current ratio is a signal of reduction in liquidity and might be an indication of declining profitability. Despite this notion, a very significant current ratio could signify over liquidity implying that investable funds are tied in liquidity with zero returns leading to declining profits.. This assertion is in sync with the observation of Eljelly (2004) who claims that the relationship between liquidity and profitability is negative. Inventory is a key element of current assets of a firm. It is however illiquid and the ease of conversion to liquid assets is tied to the forces of demand and supply. Because, inventory is illiquid and suffers drawback of uneasy conversion it is often the practice to delist inventory as an element of current asset to gauge the true liquidity position of the firm. .Profitability might be dependent on firm activities connected to inventories and receivables. However, the size of the firm plays an important role in the proper determination of the role of Inventory in liquidity management. High level of inventories and receivables could be an indication of cash constraints. Conversely, more profitable firms might afford to have relatively high level of inventories and receivables without significant impact on liquidity and profitability. Therefore, it is expected that together with the growth of receivable conversion period and inventory conversion period, the profitability increases. M.Deloof (2003) in his findings noted a trade-off between profitability and capacity to pay debts. In his assertion less profitable firms have a longer creditors payment period and wait longer in satisfying their debt obligations signifying a negative relationship between liquidity and profitability. For example Gill, Biger and Mathur (2010) proved that the alongside the cash conversion period growth, the company profitability increases. On the other hand, Shin and Soenen (1998) argued that together with the increase of cash conversion period, the profitability diminishes. However, Baños-Caballero (2012), García- Teruel and Martínez-Solano (2007) used cash conversion period as the proxy to measure working capital claim that "the relation between working capital and profitability is positive when firms hold low levels of working capital and becomes negative for higher levels of working capital" . According to Beranek, (2003) One of the most controversial issues regarding the working capital management is the tradeoff between the lower profitability of current assets and the financial slack provided from it This controversy has been sustained over decades. The liquid assets are usually less profitable than the fixed assets and Investments in working capital do not generate production or sales (Assaf Neto 2003). Ross (2000) and Gitman (2003) also corroborate this idea, confirming a tradeoff between high amounts of net working capital and maximizing profitability. This outcome could be attributable to high current assets which generate costs for maintenance, not directly adding value. However, Hirigoyen (1985) argues that over the medium and long run the relationship between liquidity and profitability could become positive, in the sense that a low liquidity would result in a lower profitability due to greater need loans, and low profitability would not generate sufficient cash flow, thus forming a vicious cycle

METHODOLOGY

Data

The sample size and population consist of all pharmaceutical companies listed on the Nigeria Stock Exchange between 2011 and 2013. The data was collected from the sampled population from the published financial statements of the companies and the fact book of the Nigeria stock Exchange

Variables

The variables of study are Return on equity, return on total assets, returns on Capital employed, current ratio, acid test ratio, net working capital ratio, gross profit percentage, net profit percentage

Measurement of Variables

Table 1

Variable	Symbol	Formula	Scale
Acid Test	C1	$\frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$	Ratio
Current Ratio	C2	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	Ratio
Gross Profit Ratio	C3	$\frac{\text{Gross Profit}}{\text{Sales}} \times 100$	Ratio
Net Profit Percentage	C4	$\frac{\text{Net Profit}}{\text{Sales}} \times 100$	Ratio
Net Working Capital	C5	$\frac{\text{Net working capital}}{\text{Total Assets}} \times 100$	Ratio
Return on Assets	C6	$\frac{\text{Net Profit after Tax}}{\text{Average Total Assets}} \times 100$	Ratio
Return on Capital Employed	C7	$\frac{\text{Net Profit after Tax}}{\text{Total Net Assets}} \times 100$	Ratio
Return on Equity	C8	$\frac{\text{Net Profit after Tax}}{\text{Shareholders Fund}} \times 100$	Ratio

Descriptive Analysis

Descriptive Analysis gives a complete evidence of the behavior of the variable. The researcher obtained descriptive statistics of the variables namely mean, maximum, minimum, standard deviation, median. This provides insight into the behavior of the variables

Multiple Regression

The Research work uses multiple Regression analysis to ascertain the influence of independent variable on the dependent variable and is given by the equation

$$Z = \beta_0 + \beta_1 + C1 + \beta_2 + C2 + \beta_3 + C3 + \beta_4 + C4 + \beta_5 + C5 + \beta_6 + C6 + \beta_7 + C7 + \beta_8 + C8$$

Where:

Z = Profit growth

C1 = Acid Test

C2 = Current ratio

C3 = Gross profit percentage

C4 = Net profit percentage

C5 = Net working Capital ratio

C6 = Return on Asset

C7 = Return on Capital employed

C8 = Return on Equity

$\beta_1, \beta_2, \dots, \beta_8$ = coefficient independent variable

0 = error term

Test and Selection of Models

This research uses panel data which is a combination of time series and cross sectional data implying that panel data is obtained from a cross section of individual data observed over and over at different times. Two residual model paneling method used by the Generalized Least square (GLS) to select appropriate model for the test is the Fixed Effect Model (FEM) and the Random Effect Model (REM)

Fixed Effects

Fixed Effects model explores the relationship between predictor and outcome variables within an entity. Each entity has its own individual characteristics that may or may not influence the predictor variables. Fixed Effects model assumes that something within the individual may impact or bias the predictor or outcome variables and this should be controlled. There is an assumption of the correlation between entity's error term and predictor variables. Fixed Effect removes the effect of time-invariant characteristics and assesses the net effect of the predictors on the outcome variable. Fixed Effect assumes that the time-invariant characteristics are unique to the individual and should not be correlated with other individual characteristics. Each entity is different therefore the entity's error term and the constant which captures individual characteristics should not be correlated with the others. If the error terms are correlated, then FE is not suitable and can lead to incorrect inferences

The equation for the fixed effects model:

$$Y_{it} = \beta_1 X_{it} + \alpha_i + u_{it}$$

Where

– α_i ($i=1 \dots n$) is the unknown intercept for each entity

(n entity-specific intercepts).

Y_{it} is the dependent variable,

i = entity

t = time.

– X_{it} represents one independent variable

– β_1 is the coefficient

– u_{it} is the error term

Random Effect

Random effects assume that the entity's error term is not correlated with the predictors which allows for time-invariant variables to play a role as explanatory variables. These characteristics that may or may not influence the predictor needs to be specified. The problem with this is that some variables may not be available therefore leading to omitted variable bias in the model. It allows for generalized inference beyond the sample. Random Effect model:

The random effects model is:

$$Y_{it} = \beta X_{it} + \alpha + u_{it} + \epsilon_{it}$$

Hausmann Test

Hausmann test is carried out to decide which model is most appropriate between fixed or random effects model. It is carried out with the assumption that the null hypothesis is the preferred model. Random Effect Model is the null hypothesis while the alternative is the fixed effects. It tests whether the unique errors (u_i) are correlated with the regressors; the null hypothesis is they are not. That is

H_0 = Random Effect

H_A = Fixed Effect

Hausmann test uses a statistical distribution chi square with degree of freedom as many as k where k is the number of independent variables. If there is a rejection of hypothesis zero where the value of statistics is greater than the critical value (the value of the table chi square) then model fixed effect is used and the reverse is the case where calculated value is less than the critical or table value

T TEST

T test or significance partial test is carried out to ascertain if a Regression parameter is in accordance with the hypothesis. Criteria statistics t test is compared with the critical value or by counting the p-value and this can be calculated on Eviews without searching for the values on the table.

The rule for t test is as follows:

- If the *p value* $> \alpha = 0.05$ then the variable does not have a significant impact.
- If the *p value* $< \alpha = 0.05$ then the variable have a significant impact

Hypotheses

H01: Acid test ratio has no relation with the growth of profit of pharmaceutical companies in Nigeria between 2009 and 2013

H02: Current ratio has no influence on the growth of profit of Pharmaceutical companies in Nigeria

H03: Gross profit percentage has no influence on the profit growth of Pharmaceutical companies in Nigeria

H04: Net profit percentage has no relation with the growth of profit of Pharmaceutical companies listed on the Nigeria Stock Exchange

H05: Net working capital ratio has no influence on the growth of profit of Pharmaceutical companies listed on the Nigeria Stock Exchange

H06: Return on Asset has no influence on the growth of profit of Pharmaceutical companies listed on the Nigeria Stock Exchange

H07: Return on Equity has no influence on the growth of profit of Pharmaceutical companies in Nigeria

H08: Return on capital employed has no influence on the growth of profit of Pharmaceutical companies in Nigeria

H09: Current ratio, net working capital, acid test ratio. Return on total asset, Return on equity, Return on capital employed does not simultaneously have any influence on the profit growth on Pharmaceutical companies

Result**Table 2: Descriptive Statistics**

	ACID TEST	CURRENT RATIO	GP	NP%	NWC	PROFIT GROWTH	ROA	ROCE	ROE
Mean	0.767060	1.244400	0.411160	0.045000	0.278033	-0.027480	0.027180	0.104600	0.075580
Median	0.799300	1.244500	0.412400	0.022600	0.244500	0.000000	0.033200	0.073000	0.061200
Maximum	0.877700	1.620400	0.456100	0.233500	0.619683	2.522700	0.084500	0.192500	0.190500
Minimum	0.612600	0.972700	0.338300	-0.165900	0.137567	-2.543500	-0.043300	0.007000	-0.071900
Std. Dev.	0.107499	0.238017	0.049073	0.153322	0.198520	1.800699	0.054048	0.082626	0.114625
Skewness	-0.481544	0.660870	-0.504644	-0.141964	1.228280	0.030886	-0.221943	0.120793	-0.096539
Kurtosis	1.784594	2.489387	1.955971	1.898761	2.894341	2.448466	1.516388	1.384181	1.510933
Jarque-Bera	0.500990	0.418275	0.439304	0.269447	1.259553	0.064168	0.499613	0.556090	0.469708
Probability	0.778415	0.811283	0.802798	0.873958	0.532711	0.968425	0.778952	0.757263	0.790686
Sum	3.835300	6.222000	2.055800	0.225000	1.390167	-0.137400	0.135900	0.523000	0.377900
Sum Sq. Dev.	0.046224	0.226609	0.009633	0.094030	0.157641	12.97007	0.011685	0.027308	0.052556
Observations	5	5	5	5	5	5	5	5	5

Source: Eviews version 7

The descriptive statistics shows that all the variables except profit growth have a positive mean. Acid test ratio 0.767060, current ratio 1.244400, gross profit percentage 0.411160, net profit percentage 0.045000, net working capital ratio 0.278033, return on asset 0.027180, Return on capital employed 0.104660, return on equity 0.075580. The profit growth has the highest maximum value of 2.522700 and ROA the lowest maximum value of 0.084500. Profit growth has the highest minimum value of -2.543500 and current ratio the highest minimum value of 0.972700. The highest standard deviation value is profit growth 1.800699 and the minimum standard deviation is variable gross profit percentage with a value of 0.049073. Based on the descriptive statistics most of the variables have positive descriptive statistics values.

Table 3: Test Comparison

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
CURRENT_RATIO	-1.598715	-2.423643	0.478786	0.2332
GP	8.310025	7.805872	16.378762	0.9009
NET_PROFIT_RAT				
IO	4.550740	4.003368	1.218708	0.6200
ROA	6.955015	6.405827	3.166846	0.7576
ROCE	6.486661	6.561055	2.281898	0.9607

Table 4: Output of Hausmann Test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.716959	5	0.7435

** WARNING: estimated cross-section random effects variance is zero.

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Cross-section random effects test equation:

Dependent Variable: PROFIT_GROWTH_RATIO

Method: Panel Least Squares

Date: 07/12/15 Time: 16:38

Sample: 2009 2013

Periods included: 5

Cross-sections included: 6

Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.260648	2.810591	-0.804332	0.4312
CURRENT_RATIO	-1.598715	1.045230	-1.529534	0.1426
GP	8.310025	6.847309	1.213619	0.2398
NET_PROFIT_RATIO	4.550740	2.580725	1.763357	0.0939
ROA	6.955015	5.940789	1.170722	0.2562
ROCE	6.486661	2.675397	2.424560	0.0255

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.637991	Mean dependent var	-0.027490
Adjusted R-squared	0.447459	S.D. dependent var	3.843058
S.E. of regression	2.856664	Akaike info criterion	5.213761
Sum squared resid	155.0500	Schwarz criterion	5.727533
Log likelihood	-67.20641	Hannan-Quinn criter.	5.378121
F-statistic	3.348482	Durbin-Watson stat	2.046333
Prob(F-statistic)	0.011307		

Null hypothesis: Random effect model is more appropriate than fixed effect model. To test this hypothesis a Hausman Test was conducted and the result is as above.

From the Hausman test result above the p-value is 0.01, this is statistically significant at the conventional level of 0.05.

Decision: we shall reject the null hypothesis that random effect model is more appropriate than fixed effect model in analyzing the relationship between profit growth and the independent variables.

Therefore, the fixed effect model shall be applied to test the null hypothesis that, there is no statistically significant relationship between profit growth and acid test, current ratio, gross profit, net profit, net working capital, return on capital employed, return on assets and return on equity.

From the results

$$Z = 0.000410 - 28.41052 + 56.34829 - 2.917215 + 27.39199 + 4.104240 + 36.62639 - 19.2224$$

Table 5: Fixed Effect Estimation

Dependent Variable: PROFIT_GROWTH_RATIO

Method: Panel Least Squares

Date: 07/12/15 Time: 01:36

Sample: 2009 2013

Periods included: 5

Cross-sections included: 6

Total panel (balanced) observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PROFIT_GROWTH (Z)	1.759715	1.786974	0.984746	0.3394
ACID_TEST (C1)	0.000410	0.000193	2.120975	0.0499
CURRENT_RATIO (C2)	-28.41052	5.574094	-5.096885	0.0001
GP (C3)	56.34829	10.87289	5.182456	0.0001
NET_PROFIT_RATIO (C4)	-2.917215	2.238940	-1.302945	0.2110
NET_WORK_CAP (C5)	27.39199	5.634739	4.861271	0.0002
ROA (C6)	4.104240	3.372955	1.216808	0.2413
ROCE (C7)	36.62639	4.728110	7.746518	0.0000
ROE (C8)	-19.22224	2.958959	-6.496286	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.910398	Mean dependent var	-0.027490
Adjusted R-squared	0.837596	S.D. dependent var	3.843058
S.E. of regression	1.548728	Akaike info criterion	4.017470
Sum squared resid	38.37695	Schwarz criterion	4.671362
Log likelihood	-46.26205	Hannan-Quinn criter.	4.226656
F-statistic	12.50516	Durbin-Watson stat	2.824747
Prob(F-statistic)	0.000005		

Source: Eviews version 7

From the fixed effect estimation output the various independent variables which comprise of acid test ratio, current ratio, gross profit ratio, net profit ratio, net working capital ratio, return on assets, return on capital employed and return on equity has the following results:

Acid test has a positive relationship with profit growth, with a p-value of 0.0499 which is less than the traditional 0.05 level of significance we can, therefore, conclude that acid test significantly contributes to profit growth;

Current ratio has a negative relationship with profit growth, nevertheless, with a p-value of 0.0001 we can equally say that current ratio significantly contributes to profit growth;

Gross profit ratio has a positive relationship with profit growth and a p-value of 0.0001, hence, we can say that gross profit significantly contributes to profit growth;

Net profit ratio has a negative relationship with profit growth and with a p-value of 0.2110 we can also say that net profit does not significantly contributes to profit growth;

Net working capital ratio has a positive relationship with profit growth and has a p-value of 0.0002, therefore, we conclude that net working capital significantly contributes to profit growth;

Return on assets has a positive relationship with profit growth and has a p-value of 0.2413 which is statistically insignificant;

Return on capital employed also has a positive relationship with profit growth and with a p-value of 0.0000 we conclude that return on capital employed significantly contributes to profit growth; and

Return on equity has a negative relationship with profit growth, however, with a p-value of 0.0000, we can confidently conclude that return on equity makes a significant contribution to profit growth.

Discussion

Generally speaking, the R square value is 0.910398 which indicates that 91 percent of the variation in profit growth is explained by acid test, current ratio, gross profit, net profit, net working capital, return on capital employed, return on assets and return on equity. In addition, the intercept is positive which means that acid test, current ratio, gross profit, net profit, net working capital, return on capital employed, return on assets and return on equity has a positive relationship with profit growth.

The analysis also shows a p-value of 0.0001 which is lower than the 0.05 conventional level of significance. Therefore; we conclude that there is a statistically significant relationship between profit growth and the entire independent variables.

Based on the result of the f test the value of f is worth 12.506. This can be compared with f table $n = 30$ and $\alpha = 5\%$ which the result is 2.60 therefore if obtained result is $12.506 > 2.60$, it can be concluded that H_0 is rejected and alternative hypothesis accepted. It shows that all the independent variables acid test, current ratio, gross profit ratio, net profit ratio, net working capital ratio, return on asset, return on capital employed and return on equity simultaneously contribute to profit.

Implication for future Research and Practice

Despite our findings caution should be exercised in drawing far reaching conclusions as industry structure and government regulation may affect the validity of our study. Furthermore, there may be other external factors which affect the profitability of the firm which are ignored by this study such as the quality of Human Resources, environmental factors, organizational structure and operational procedures. Nevertheless, our study corroborates other studies and is likely to influence the way practitioners' in the Pharmaceutical industry in Nigeria perceive the contribution of liquidity to the growth of the firm. Financial Managers can deliberately manage the ratios used in this study with the aim of increasing the profitability of the firm. The study contributes to existing literature as it opens an opportunity for researchers to consider looking at the implications of other factors when investigated simultaneously with liquidity variables on the growth of profit. It will also be of interest to Risk Managers who will focus more on the liquidity risks associated with their operations. This is in line with Basel 11 for financial institutions.

CONCLUSION

Our findings indicate a positive relationship between liquidity variables, profit variable and growth of profit. This implies that the level of liquidity in pharmaceutical firms influences the extent of profitability and firms growth. This is in line with the findings of Padachi () (2006) and Renato Schwambach Vieira (2010) and Justina zygamant (2011) who asserts that liquidity impacts profit positively. This study further collaborates Trade-off theory as current ratio and acid test ratio have a positive relationship with profitability. The trade-off theory suggests that firms target an optimal level of liquidity to balance the benefit and cost of holding cash. The cost of holding cash includes low rate of return of these assets because of liquidity premium and possibly tax disadvantage. The advantage of holding cash is that the firms save transaction costs to raise funds and does not need to liquidate assets to make payments. Additionally, the firm can use liquid assets to finance its operations and invest if other medium of funding are not available or unnecessarily exorbitant. Thus firms will tend to increase their liquidity until it reaches optimal level which maximizes profit. The study also shows a negative relationship between equity and profit. This is in line with Titman and Wessels (1985) study which shows that more profitable firms will tend to use less external financing thus providing support for pecking order theory.. It also collaborates previous study by , Hirigoyen (1985) whose study shows that over the medium and long run the relationship between liquidity and profitability could become positive, in the sense that a low liquidity would result in a lower profitability due to greater need for loans, and low profitability would not generate sufficient cash flow, thus forming a vicious cycle

Future Research

The current study examined only the Pharmaceutical firms in Nigeria. Future research could extend the research to cover other sub sectors of the Manufacturing industry in Nigeria. The controversy about the trade-off between liquidity and profitability can be investigated especially in financial institutions because of the peculiar nature of its operation. A comparative study can be carried out amongst industries on how the nature and structure of the industry may affect the liquidity and profitability of the firm.

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