

## Liquidity Management and Firm Value of Quoted Manufacturing Companies In Nigeria

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**Abstract:** This study was conducted to examine the influence of liquidity management on firm value of quoted manufacturing companies in Nigeria. This was premised on the fact that continuous existence of quoted manufacturing companies is guaranteed by the level of improvement in firm value, which may depend upon the level of liquidity management technique employed by managers. Have these techniques of liquidity management adopted by managers of quoted manufacturing companies in Nigeria influence firm value? Ex-post facto research design was employed for the study. Forty-two (42) quoted companies were sampled out of a population of fifty-six (56) quoted listed on the floor of the Nigerian Stock Exchange (NSE) as at December 31, 2019. The independent variables for liquidity management were measured by current ratio (CRR), Quick Ratio (QR), Cash Ratio (CR) and Net Working Capital Ratio (NWCAR), and Firm Value (FV) was the dependent variable. Panel data was sourced from the published financial reports of the sampled companies and analysed using Fixed effect regression technique. Results revealed that CRR, QR and NWCAR had positive and significant influence on FV, CR had a positive and insignificant influence. It was recommended that managers of quoted companies should invest continuously on current assets for the purpose of raising liquidity and profitability which impacts on firm value.

**Keywords:** Firm Value, Liquidity, Manufacturing Companies.

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### 1.1. Introduction

The continuous existence of any company in any economy are usually targeted towards improvement in firm value. If firm value is seen as book value, firms would be looking at increase in assets, earnings per share, dividend per share and book value of equity. If firm value is considered as

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market value, companies would be considering increase in market price of shares, price earnings ratio and market capitalization. Thus, firm value could be understood from the standpoint of increase in both book value and market value. Another common measure of value of companies is Tobin's Q which usually show the level of growth of companies in terms of equity and debt capital to total assets. Growth in market price of shares of companies usually influence the market value of equity of the entities positively because price is often multiplied by the outstanding shares. Thus, when market price of shares increases, the total market value of equity is certain to improve as well. Improvement in earnings per share, dividend per share, price earnings ratio and book value of equity are all indicators of growth in firm value. Specifically, for there to be improvement in these indicators, profitability is expected to be raised. This simply means that for the purpose of raising the value of companies, improvement in profitability of the entities through various attributes that are within the control of managers is fundamentally ideal.

Factually, one major specific attributes that regularly show how effective the strategies and policies of managers are include liquidity or working capital, capital structure or leverage decisions, size of assets or asset growth, revenue growth and so on. Some of these factors or attributes are either long-term or short-term in nature. For instance, liquidity management or working capital management of liquidity or working capital include current ratio, quick ratio, cash ratio and net working capital ratio (NWCAR) (Okoro, 2016; Nurein & Din, 2017, and Ologbenla, 2018). Previous studies in this area of interest in Nigeria did not really dwell on the specific sectors that make up quoted manufacturing companies in Nigeria (Nurein & Din, 2017; James, 2020; Dristianti & Foeh, 2020). Also, studies that have been conducted in respect to liquidity management and firm value of quoted companies have not really captured the key variables of liquidity management such as cash ratio and net working capital ratio. Moreso, studies on liquidity management of companies conducted by previous researchers are mostly on profitability of quoted companies (Ware, 2015; Grace *et al.*, 2016, and Okoro, 2016), and most did not consider the effect of accumulating more cash on firm value of entities whereby in ideal liquidity management techniques, cash is expected to be maintained as low as possible. This study on the key variables of liquidity management on firm value of the listed manufacturing entities will minimize the gap in the literature.

## **1.2. Objective of the Study**

The main objective of the study was to empirically investigate the influence of liquidity management of firm value of quoted manufacturing companies

in Nigeria. Specifically, it is to determine the combined influence of current ratio, quick ratio, cash ratio and net working capital ratio on firm value of quoted manufacturing companies in Nigeria.

### **1.3. Research Question and Hypothesis Development**

The research question raise for this study is stated as: What is the combined influence of current ratio, quick ratio, cash ratio and working capital ratio on firm value of quoted manufacturing companies in Nigeria?

In line with the research objective and question, the hypothesis of the study is developed and stated as follows in null form:

Ho: Current ratio, quick ratio, cash ratio and net working capital ratio have no combined significant influence on firm value of quoted manufacturing companies in Nigeria.

### **1.4. Significance of the Study**

The empirical results of the present study would be of relevance to different categories of stakeholders of the quoted manufacturing companies in Nigeria, as well as other researchers and consultants in accounting, finance and economic resource optimization. These stakeholders include managers, shareholders, government regulatory agencies among others. This is in the area of liquidity management policies, formulation and implementation of economic policies and tax policies. The results of the research would be available as addition to literature for future researches. The rest of the paper is considered under review of related literature, methodology, results and findings and summary and conclusion.

## **2. Review of Related Literature**

The review of related literature is conducted under three sub-headings; conceptual review, theoretical review, empirical review and gap in the literature.

### **2.1. Conceptual Review**

The key concepts of the study are reviewed in this section.

**2.1.1. Firm Value of Companies:** Firm value represents the assets owned by an entity and describes the prosperity of the company owners. It is determined by the asset earning power (Lukayu & Mukanzi, 2015). It is the acquisition and trade value of the company anticipated by volunteer buyers and sellers with thorough information about the entity free from any problem or encumbrance. Firm value might be measured using measures such as earnings per share (EPS), Market Value-to-book value of equity, market price of shares, market value of equity, book value of equity, price-

earnings (P/E) ratio and Tobin's Q (Suresh & Sengottaiyan, 2015). In this study, Tobin's Q is used to measure the value of quoted companies in Nigeria.

According to Jeroh (2020), Tobin's Q measures the relationship of the firm stock market value to the firm's resources replacement cost. It is considered as the best predictor of market condition and also explains the majority of the investment variability. It can also be applied in the financial condition analysis of a company which means that investors who acquire firm's stock can first calculate the Tobin's Q (Rabiu, 2019).

**2.1.2. Overview of Liquidity and Liquidity Management:** Liquidity, in accounting, is often seen as total current assets and current liabilities of a company at a given period of time. Liquidity may be gross or net. Gross liquidity is a skeletal description of liquidity where in an accounting period, a company do not accumulate current liabilities, which rarely occurred.

Net liquidity is the difference between current assets and current liabilities of an entity in an accounting period, and may be positive or negative (Okoro, 2016). Liquidity is the ability of a firm to settle its matured obligations in an accounting period of time. It is the process of maintaining adequate liquid funds against maturing obligations or commitments (Ali & Mukhongo, 2016). A key issue in liquidity management is the need to strike a balance between liquidity position of an entity and profitability; as both are expected to influence value of companies positively and significantly. Okoro (2016) and Ware, (2015) argued that planning and controlling liquidity position of entity involves an understanding of current ratio, quick ratio, cash ratio, short-term debt ratio, operating cash flow ratio, revenue growth, working capital ratio, average collection period, average payable period, inventory holding period and cash conversion cycle; as these have functional implications on profitability and value of firms in both short and long-terms. The findings of this empirical investigation would shed light on the influence of liquidity management and firm value of quoted manufacturing companies in Nigeria, not loosing sight of the factors that influence liquidity position of companies such as nature and size of business, manufacturing cycle, business cycle fluctuations, production policy, turn-over of circulating capital, growth and expansion activities as well as operating efficiency (Ologbenla, 2018; James, 2020; Lukayu & Mukanzi, 2015; Nurein & Din, 2017). Also, it is noted that firm value is determined by such factors as dividend policy, leverage, company size, quality of products/or services (Kristianti & Foeh, 2020; Lukayu & Mukanzi, 2015; Fajaria & Isnalita, 2018).

## **2.2. Theoretical Review**

Two theories formed the theoretical foundation of this study, Cash Conversion Circle (CCC) theory and the Agency Theory.

**2.2.1. Cash Conversion Cycle (CCC) Theory**

This theory was developed and introduced by Verlyn Richards and Eugene Laughlin in 1980. The CCC theory integrates both current assets and current liabilities, resulting to the net working capital or liquidity. The framework was part of the working capital cycle; and explains the time interval between the cash outflows arising during production of output and the cash inflows resulting from sale of output and recovery of accounts receivables, thus boosting liquidity. Including the CCC to traditional measures gives a more thorough analysis of a firm’s liquidity position that could influence value of quoted manufacturing companies in Nigeria.

**2.2.2. Agency Theory**

This theory was developed by Jensen and Meckling (1976). It describes the relationship between shareholders as principals and management as agents. In the theory, management who act as agents tends to optimize the value of the company entrusted to them as well as enhancing their own well-being, sometimes to the detriment of the shareholders (principals) in what is described on agency conflict. On the whole, the theory is concerned on how managers could raise the value of companies from strategies formulated and implemented which include liquidity management. Hence, this theory is adopted in the present study.

**2.3. Empirical Review**

The selected empirical review for this study are presented in a tabular format as follows:

**Table 2.1: Summary of Empirical Literature**

<i>S/N</i>	<i>Author(s)</i>	<i>Topic</i>	<i>Methodology</i>	<i>Finding(s)</i>
1.	Arachchi, Perera & Vijayakumaran (2017)	The impact of working capital management on firm value: Evidence from a frontier market.	Time series data obtained were analyzed using multiplier linear regression technique.	From the analyses, it was observed that CCC had negative and significant influence on value (Tobin’s Q), suggesting that managers can create value for their shareholders by efficiently reducing investment in working capital of their firms.

*contd. table 2.1*

<i>S/N</i>	<i>Author(s)</i>	<i>Topic</i>	<i>Methodology</i>	<i>Finding(s)</i>
ii.	Nurein and Din (2017)	Working capital management and firm value: The role of firm innovativeness.	Fixed regression estimate was employed by the researchers in analyzing the sourced data.	The findings indicated that innovative firms had a better working capital performance than the non-innovative firms.
iii.	Fajaira and Isnalita (2018)	The effect of profitability, liquidity, leverage and firm growth of firm value with its dividend policy as a moderating variable	Relevant data were collected from the financial statements of the sampled manufacturing companies. The sourced data were analyzed using multiple linear regression statistical tool.	It was observed that profitability and high growth company were found to increase the firm value while liquidity and leverage were discovered to reduce firm value.
iv.	Megaladevi (2018)	The impact of liquidity ratios on profitability of selected cement companies in India.	For the purpose of analyzing the liquidity ratios on profitability, regression technique was used by the researcher.	The outcomes of the analyses showed that both current and quick ratios had a positive and significant influence on ROA and ROE.
v.	Hidayat, Wahyudi, Muharam, Shaferi & Puspitasari (2019)	The improve level of firm value with liquidity, debt policy and investment in Indonesia emerging market	The sourced data were analyzed using multiple linear regression technique.	The results of the analyses revealed that liquidity, debt and investment had positive and significant influence on the firm value off all the sampled companies.
vi.	Reschiwati, Syahdina, & Handayani (2019)	Effect of liquidity, profitability and size of companies on firm value	the sample size of the study was made up of fifteen (15) companies quoted on the floor of Indonesian Stock Exchange (ISE)	The outcomes of the findings showed that liquidity, profitability and firm size significantly influence firm value

*contd. table 2.1*

S/N	Author(s)	Topic	Methodology	Finding(s)
Vii	Tui and Afriyani (2019)	Effect of Liquidity and company size on profitability and company value in banking industry in Indonesia Stock Exchange	The obtained data were analyzed by using structural Equation Modeling (SEM) with the program of Analysis moment structure (Amos)-22	Results of the analyses showed that liquidity had a positive and significant effect on profitability, but liquidity had a negative and insignificant effect on value, company size had a positive and insignificant effect on profitability and firm value.
viii.	Vijayakumaran (2019)	Efficiency of working capital management and firm value: Evidence from Chinese listed firms.	The Net Trade Cycle (NTC) and its components were used to measure efficiency of WCM, while the firm value was measured by the Tohin's Q ratio. The study made use of panel data methodology to estimate the regression model.	From the analyses, it was reported that net trade cycle was negatively associated with firm value. Also, it was observed that firm value was adversely affected by the number of days account receivable and inventories.
ix.	James (2020)	Liquidity, size and firm value: Evidence from Nigerian economy.	The <i>ex-post facto</i> research design was adopted in the study using data for the period 2007 to 2016.	The findings justified the view that firm size had a significant influence on firm market value, though the influence was negative.
x.	Kalbuana, <i>et al.</i> , (2020)	Liquidity effect, profitability leverage to company value: A case study of Indonesia	The technique used in the analyses was quantitative approach with sample determination technique which data were analysed using multiple linear regression analysis	It was observed that liquidity variables impact on the company value, while the variables of profitability and leverage do not affect company value significantly.

*contd. table 2.1*

<i>S/N</i>	<i>Author(s)</i>	<i>Topic</i>	<i>Methodology</i>	<i>Finding(s)</i>
xi.	Kristiani and Foeh (2020)	The impact of liquidity and profitability on firm value with dividend policy as an intervening variable (Empirical study of manufacturing companies in the pharmaceutical sub-sector listed on the Indonesia Stock Exchange in 2013-2017).	The sourced data were analyzed using descriptive analysis, multiple linear regression analysis and as well as path analysis.	The outcomes of the analysis indicated that liquidity, profitability and dividend policy simultaneously had a positive and significant influence on firm value.

*Source:* Researchers' Compilation (2022).

#### **2.4. Gap in the Literature**

From the empirical literature reviewed in respect of previous researches in this area of interest, the variables of liquidity management such as current ratio, quick ratio, cash ratio, and net working capital ratio had not been combined in a single multiple linear regression model to examine their influence on firm value of quoted manufacturing companies in Nigeria at the time of this investigation to the best knowledge of the researchers. The sub-entities that made up the quoted manufacturing companies in this study also made the study unique from previous ones. In these regards, the researchers of the present investigation believed that the outcomes would contribute to knowledge and add to the stock of empirical literature in this area of interest.

### **3. Methodology**

The nature of this study, which is quantitative, permitted the adoption of *ex-post facto* research design. The design help the researchers to establish, appropriately, the direction of the influence of the liquidity management on firm value of quoted companies in Nigeria.

#### **3.1. Population and Sample Size of the Study**

The population of this study was made up of aggregate of the manufacturing companies in Nigeria whose shares were quoted on the floor of Nigeria Stock Exchange (NSE) at 31<sup>st</sup> December, 2019. Fifty-six (56) quoted companies cutting across all the manufacturing sector form the population of the study. Forty-two (42) quoted manufacturing companies were drawn



and sampled for the study on the basis of the availability of data set in relation to the variables of the present study. That is, only the companies whose financial statements were published and available constituted the sample size of the study.

### 3.2. Source and Nature of Data

The source of data for this study was restricted to the sampled manufacturing companies in Nigeria. Precisely, secondary data (the published financial statements of these entities) from 2013 to 2019 were used. The nature of data is panel data set whose observation is calculated as the multiple of number of the companies sampled for the study and the number of years for which data are collected.

### 3.3. Theoretical Specification of Models

The theoretical model developed for this study is based on the conceptual foundation and review, showing the connection of all the predictors variable to the dependent variable as shown on figure 3.1.

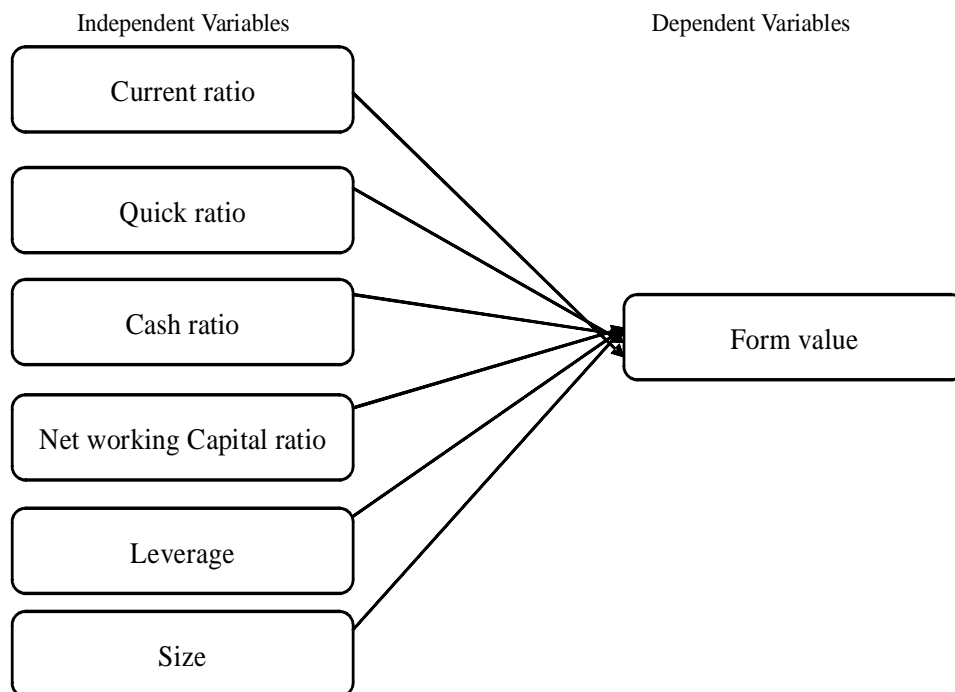


Figure 3.1: Theoretical Model of the Study

Source: Researchers' Conceptualization (2022).

### 3.4. Empirical Specification of Models

In this study, the focus was to establish the influence of independent variables on the dependent variable, and in line with hypothesis of the study, the empirical model is stated as:

$$FV_{ij} = \beta_0 + \beta_1 CRR_{ij} + \beta_2 QR_{ij} + \beta_3 CR_{ij} + \beta_4 NWCR_{ij} + \beta_5 LV_{ij} + \beta_6 SZ_{ij} + e_t$$

Model I

Where;

i = Number of companies, j = Number of years,  $\beta_0$  = Intercept of FV,  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  and  $\beta_6$  = Coefficient of each of the independent variables, and  $e_t$  – Random error terms.

### 3.5. Measurement and Description of Variables and Apriori Expectations

The variables for this study are described, and measured as well as the apriori expectation on Table 3.1.

**Table 3.1: Variable Measurement and Description**

S/N	Variable	Abbreviation	Measurement	Apriori Expectation
i.	Firm Value	FV	Market value of equity plus book value of debts divided by total assets ( <i>Arachchi et al., 2017</i> )	
ii.	Current Ratio	CRR	Total current assets divided by current liabilities ( <i>Lukayu and Mukanzi, 2015</i> )	Positive
iii.	Quick Ratio	QR	Total assets less inventories divided by current liabilities ( <i>Okoro, 2016</i> )	Positive
iv.	Cash Ratio	CR	Total cash divided by current liabilities ( <i>Grace et al., 2016</i> )	Positive
v.	Net Working Capital Ratio	NWCR	Total current assets less current liabilities divided by total assets ( <i>Nurein &amp; Din, 2017</i> )	Positive
vi.	Leverage	LV	Total debts divided by assets ( <i>Ware, 2015; Kristianti &amp; Foeh, 2020</i> )	Negative
vii.	Size	SZ	Logarithm of total assets ( <i>Hossain and Ali, 2012</i> )	Positive.

Source: Researchers' Compilation (2022).

It is worthy of note that, leverage and size are introduced into the model as control variables.

### 3.6. Method of Data Analysis

The collected data were analyzed using both descriptive statistics and panel multiple linear regression. The descriptive statistics was meant to examine the nature of the sourced data in terms of minimum, maximum, mean, standard deviation, Skewness, Kurtosis and Jarque-Bera statistics. The inferential statistics used were  $R^2$ , Adjusted  $R^2$ , P-value, t-statistic and F-ratio. Analysis were carried out at 5% level of significance.

Other econometric issues examined were multicollinearity test (Variance Inflation Factor (VIF)), stationarity test, Auto correlation test and Hausman test.

## 4. Results and Discussions of Findings

The results of data analyses and the discussions are carried out in this section.

### 4.1. Descriptive Statistics

For the purpose of examining the nature of the sourced data for the period under investigation, the descriptive statistics for each variables of the study are presented on Table 4.1.

**Table 4.1: Descriptive Statistics**

Statistics	FV	CRR	QR	CR	NWCR	LV	SZ
Mean	39.9608	1.34280	0.93841	0.27592	0.03531	0.59115	7.34455
Median	6.82200	1.16000	0.73800	0.14200	0.05700	0.58200	7.45300
Maximum	6.82200	22.3720	18.4330	13.3130	0.86100	2.23000	9.26100
Minimum	-14.2480	0.04500	-2.42400	0.00000	-1.50600	-1.01400	5.23900
Std. Dev.	121.751	1.51010	1.33381	0.81098	0.27561	0.32504	0.86872
Skewness	0.50794	0.98980	0.87489	1.43181	-1.95158	0.80782	-0.24504
Kurtosis	3.04904	3.22671	3.07589	2.29594	2.18939	2.13945	2.39054
Jarque-Bera	4.0486	4.0879	5.3728	6.3685	8.5170	8.8806	7.4884
Probability	0.1420	0.1340	0.1241	0.0934	0.0983	0.0856	0.0937
Sum	11708.5	393.440	274.954	80.8430	10.3470	173.208	2151.95
Sum sq. Dev.	4328398	665.874	519.482	192.045	22.1812	30.8504	220.364
Observations	293	293	293	293	293	293	293

Source: Researchers' Computation (2021)

From Table 4.1, Firm Value (FV), measured by the sum of market value of equity and book value of debt divided by assets had 39.9608, 6.8220, 877.412, -14.428 and 121.751 respectively for mean, median, maximum, minimum and standard deviation. The skewness of 0.50794 and kurtosis value of 3.04904 showed that FV were positively skewed and normally distributed during the period of the study.

Current Ratio (CR), measured by current assets less inventories divided by current liabilities, had 0.93841, 0.7380, 18.4330, -2.4240 and 1.3338

respectively for mean, median, maximum, minimum and standard deviation. This indicated that QR of quoted manufacturing companies during the period of this study was moderately low. The skewness of 0.87489, kurtosis value of 3.07589 and Jarque-Bera value of 5.3728 showed the QR were positively skewed, normally distributed but below normal curve.

Cash Ratio (CR), measured by total cash divided by current liabilities, had 0.2759, 0.1420, 13.313, 0.00 and 0.81098 respectively for mean, median, maximum, minimum and standard deviation. This implies the cash ratio for these companies was lower during the study period. The skewness of 1.43181, kurtosis value of 2.2959 and Jarque-Bera value of 6.3685 showed CR were positively skewed and had attributes of normality, though below normal curve.

Net Working Capital Ratio (NWCR), measured by total current assets less current liabilities divided by total assets, had 0.0352, 0.0353, 0.0570, 0.8610, -1.506 and 0.2756 respectively for mean, median, maximum, minimum, and standard deviation. The result show high level of fluctuation in the variables study. The skewness of -1.95158 showed vividly that the data for NWCR were negatively skewed. Kurtosis value of 2.18939 shows data obtained were below normal curve while Jarque-Bera value of 8.5170 ( $p > 0.05$ ) showed attributes of normality over the period study for the variable NWCR.

Leverage (LV), measured by total debts divided by assets, had 0.59115, 0.5820, 2.230, -1.014 and 0.32504 respectively for mean, median, maximum, minimum and standard deviation indicated that the leverage of quoted manufacturing companies during the period of study was highly geared. The skewness of 0.80782 shows that data were positively skewed. Kurtosis value of 2.13745 showed that the data obtained for LV were below normal curve. The Jarque-Bera value of 8.8806 ( $p > 0.05$ ) showed that the data for LV had attributes of normality for the quoted manufacturing companies in Nigeria.

Size (SZ), measured by logarithm of total assets, had 7.34455, 7.4530, 9.2610, 5.2390 and 0.86872 respectively for mean, median, maximum, minimum and standard deviation. This shows the level of fluctuation was not high. The skewness value of -0.24594 showed data for SZ were negatively skewed. Kurtosis value of 2.39054 indicates data were below normal curve. The Jarque-Bera value of 7.4884 ( $p > 0.05$ ) showed that the data for size had attributes of normality for the quoted manufacturing companies in Nigeria.

#### **4.2. Multicollinearity Check**

Multi-collinearity usually exists where there is a significant relationship between one predictor and the other in a model. In this study, the variance

Inflation Factor (VIF) was used to check the existence of multi-collinearity in all the predictors. For the fact that the model of this study has intercept (constant), the centred VIF was used to check for the existence of multi-collinearity. The result of the computation was presented on Table 4.2.

**Table 4.2: Variance Inflation Factor (VIF)**

Variable	Coefficient Variance	Uncentered VIF	Centred VIF
C 38	5023.961	109.1828	NA
CRR	331.8578	29.29325	1.639021
QR	262.1705	15.11908	1.010170
CR	308.8434	4.910244	1.399273
NWCR	1082.587	1.810438	1.781098
LV	730.1481	7.215982	1.670753
SZ	70.00434	83.21019	1.144209

Source: Researchers' Computation (2021).

From the result, the centered VIF values for all the predictors were less than ten (10) benchmark for deciding the existence of multi-collinearity statistically, hence the variables did not have multi-collinearity.

### 4.3. Correlation Matrix

For the purpose of assessing the level of relationship between dependent variable and independent variables and as well as determining the relationship between pairs of independent variables to check for the possible indication of multi-collinearity, correlation matrix for the variables were computed and presented on Table 4.3

**Table 4.3: Correlation Matrix**

Variable	CR	CRR	FV	LV	NWCR	QR	SZ
CR	1.000000						
CRR	0.252730	1.000000					
FV	0.016308	0.379044	1.000000				
LV	-0.113301	-0.305787	-0.019785	1.000000			
NWCR	0.305875	0.496704	0.372680	-0.244560	1.000000		
QR	0.217024	0.337850	0.341810	-0.169263	0.305021	1.000000	
SZ	0.017375	-0.093700	0.322697	-0.040067	0.040534	-0.025099	1.000000
Probability	CR	CRR	FV	LV	NWCR	QR	SZ
CR	---						
CRR	0.0230	---					
FV	0.7810	0.0029	---				
LV	0.0627	0.0000	0.7359	---			
NWCR	0.0000	0.0000	0.0251	0.0000	---		
QR	0.0013	0.0000	0.0012	0.0037	0.0000	---	
SZ	0.7671	0.1095	0.0000	0.4945	0.4895	0.6694	---

Source: Researchers' Computation (2022).

From the correlation analyses, it was observed that there was no indication of multicollinearity existing in the pair of independent variables. This was because the correlation coefficient between one independent variable and the other was less than sixty percent (60%).

#### 4.4. Test of Stationarity

Stability of panel data is very fundamental to ascertain in an empirical study. The result of the computation to check for the stability of the variables of FB, CRR, QR, CR, NWCR, LV and SZ were presented on Table 4.4.

**Table 4.4: Test of Stationarity**

<i>Method</i>	<i>Statistic</i>	<i>Prob.**</i>
ADF – Fisher chi-square	753.514	0.0000
ADF – Chi Z-Stat	-25.0572	0.0000

\*\* Probabilities for Fisher tests are computed using an asymptotic chi-square distribution. All other tests assume asymptotic normality.  
Intermediate ADF test result D (UNTITLED)

<i>Series</i>	<i>Prob.</i>	<i>Lag</i>	<i>Max Lag</i>	<i>Remark</i>
D (CR)	0.0000	5	15	Stationary
D (CRR)	0.0000	2	15	Stationary
D (FV)	0.0000	6	15	Stationary
D (LV)	0.0000	3	15	Stationary
D (NWCR)	0.0000	3	15	Stationary
D (QR)	0.0000	1	15	Stationary
D (SZ)	0.0000	6	15	Stationary

Source: Researchers' Computation (2022).

From Table 4.4, it was observed that the relevant data collected and computed in relation to the variables had no unit root. Thus, the sourced data for the variables were said to be stable because of the fact that the probability value for ADF-fisher chi-square and ADF-Choi Z-Stat were less than the level of significance of 5% (p-value < 0.05).

#### 4.5. Comparison of Fixed Effect and Random Effect Models

The comparison of the models was done by the researcher to ascertain the panel regression technique to use in this study. The comparison was done using Hausman test. The Hypotheses are:  $H_0$ :  $R_E$  is good and  $H_A$ : FE is good. The computed results were presented on Table 4.5.

**Table 4.5: Comparison of Fixed Effect and Random Effect Models**

<i>Test Summary</i>	<i>Chi-sq. statistic</i>	<i>Chi-sq. D.F</i>	<i>Prob.</i>
Cross-section Random	3.409026	6	0.00756

Cross-section random effects test comparisons:

<i>Variable</i>	<i>Fixed</i>	<i>Random</i>	<i>Var (Diff)</i>	<i>Probl.</i>
CRR	1.207927	1.935160	0.273945	0.1647
QR	0.444978	-0.327772	0.402978	0.2235
CR	2.732874	-2.893335	0.253993	0.7502
NWCR	5.798852	-6.826037	1.036599	0.3130
LV	-19.768027	-19.878192	0.605576	0.8874
SZ	4.923033	10.387634	9.758409	0.0802

Source: Researchers' Computation (2022)

From the results presented on Table 4.5, it was observed that chi-square statistic computed had probability value of 0.00756 is less than 0.05 (p-value < 0.05), which indicated that the use of random effect model was insignificant. Thus, the fixed effect model was found acceptable for this study. Hence, the fixed effect models of regression were used for the regression analysis.

#### **4.6. Regression Analysis and Test of Hypothesis**

The hypothesis of the study stated in accordance with the objectives is tested using multiple linear regression statistical tool. The computation was done following the stated model of the study.

**Hypothesis of the study:** Current ratio, quick ratio, cash ratio and net working capital ratio have no significant combined influence on firm value on quoted manufacturing companies in Nigeria.

The fixed effect linear regression results in relation to firm Value (FV) and Current Ratio (CRR), Quick Ratio (QR), Cash Ratio (CR), Net Working Capital Ratio (NWCR), Leverage (LV) and Size (SZ) were presented on Table 4.6.

**Table 4.6: Fixed Regression Output**

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-statistic</i>	<i>Prob.</i>
C	14.40855	65.03993	0.221534	0.8249
CRR	1.207927	0.247675	4.877065	0.0073
QR	0.444978	0.154411	2.881777	0.0326
CR	2.732874	5.358556	0.510002	0.6105
NWCR	5.798852	2.415651	2.400534	0.0058
LV	-19.76803	8.628909	-2.290907	0.0228
SZ	4.923033	1.725986	2.852302	0.0001

Effect Specification	
Cross-Section Fixed (Fummy Variables)	
R-Squared	0.966727
Adjusted R-squared	0.960344
f-Statistics	151.4542
Durbin-Watson Stat.	2.255264
Prob. (F-Statistic)	0.00000
Dependent Variable: FV	

Source: Researchers' Computation (2022)

From Table 4.6,  $R^2$  showed that 96.67% variation in FV during the period of this study was caused by the influence of CRR, QR, CR, NWCR, LV and SZ. Adjusted  $R^2$  showed that 96.03% variation in FV during the period of this study was caused by the influence of the independent variables. From the computed value of F-statistic of 151.45 (Prob-value  $0.0000 < 0.05$ ), it was discovered that  $R^2$  was significant in explaining the influence of influence of liquidity management (CRR, QR, CR, and NWCR) on FV o the quoted manufacturing companies in Nigeria. The Durbin-Watson (DW) statistic of 2.2553 showed that there was no first order autocorrelation in the fixed effect regression model.

CRR, QR, NWCR, and SZ had positive and significant influence on FV on quoted manufacturing companies in Nigeria. CR had a positive and insignificant influence on FV. The constant ( $\hat{\alpha}_0$ ) of 14.40855 showed the level of FV during the period of the study as CRR, QR, CR, NWCR, LV and SZ were held constant. Given the Adjusted  $R^2$  of 96.03%, F-statistic of 151.45 (Prob. Value  $0.0000 < 0.05$ ), the null hypothesis was rejected, meaning the independent variables of the study had significant influence on firm value of manufacturing companies in Nigeria during the period of this study. The findings of this study are in line with the study of Arachchi et al., (2017) who studied the influence of working capital management on firm value; Du et al. (2016) who carried out a study on corporate liquidity and firm value: evidence from China's listed firms.

## 5. Summary, Conclusion and Recommendations

### 5.1. Summary of the Findings

The purpose of this study was to examine the influence of liquidity management on firm value of the quoted manufacturing companies in Nigeria. The fundamental variables of the study were Current Ratio (CRR), Quick Ratio (QR), Cash Ratio (CR) and Net Working Capital Ratio (NWCR) with two control variables of Leverage (LV) and Size (SZ). Tobin's Q was



the proxy for firm value, and all tests conducted at 5% level of significance using the E-view statistical software-10.

The result of analyses shows that:

- i. CRR indicated positive and significant influence of firm value of quoted manufacturing companies in Nigeria (p-value < 0.05).
- ii. QR showed positive and significant influence on firm value of quoted manufacturing companies in Nigeria (p-value < 0.05).
- iii. CR indicated positive and insignificant influence on firm value of quoted manufacturing companies in Nigeria (p-value < 0.05).
- iv. NWCR showed positive and significant influence on firm value of quoted manufacturing companies in Nigeria (p-value < 0.05).
- v. CRR, QR, CR and NWCR exerted combined significant influence on firm value of quoted manufacturing companies in Nigeria with Adjusted R2 of 96.03% and F-statistic of 151.45 (Prob. Value 0.0000 < 0.05).

## ***5.2. Conclusion***

From the results of empirical analyses, it was conducted by the researchers that liquidity management had a positive and significant influence of firm value of quoted manufacturing companies in Nigeria.

## ***5.3. Recommendations***

From the findings of the study analyses, it was recommended management of quoted manufacturing companies in Nigeria and elsewhere should invest in current assets, ensure current liabilities are moderate, inventories are not allow to accumulate excessively, as well as should maintain adequate cash levels of settle obligations that are due for payments to uphold reputational capital.

## ***5.4. Business Implications of the Findings***

The outcome of the results from this study is the pointer to the fact that when investments in current assets of quoted manufacturing companies are made more, current ratio will improve positively and significantly as well as firm value, in consonance with moderate current liabilities, to maintain adequate liquidity to settle. Short-term obligations.

Managers of companies are advised to improve components of assets to generate more revenue, which would improve firm value positively and significantly.

### **5.5. Contribution to Knowledge**

The investigation findings have disclosed empirically that effective and efficient liquidity management influence firm value. Several studies conducted in this area were done on financial performance of companies from the profitability perception. In this study, the influence of liquidity management on the firm value of quoted manufacturing companies was determined using Tobin's Q as a measure of firm value. More so, the introduction of two control variables (Leverage and Size) in the model was an improvement on previous models used in other studies, is an added contribution to existing literature.

### **5.6. Suggestion for Further Researches**

The investigation in this area of interest-liquidity management and firm value of quoted manufacturing companies can be disaggregated on sector by sector basis in order to have a sectoral picture of the empirical outcomes.

### **5.7. Limitations of the Study**

The investigation carried out in this study were those of manufacturing companies quoted on the floor of the Stock Exchange as at 31<sup>st</sup> December, 2019. There may be many other manufacturing companies left out of the study because they are not quoted and because data relating to their activities were outside the reach of the researchers. The measure of firm value – Tobin's Q is only one out of many other measures of value which may have implications on the result. Also, the tool of analysis was regression technique, the assumptions of the analytical tool could be regarded as limitation.

However, the aforementioned limitations are not too fundamental to nullify the results and applicability of the findings in policy framework.

### **5.8. Declaration of Conflict of Interest**

It is hereby declared that no potential conflicts of interest in regards to the research, authorship, publication and financial sponsorship from any person or institution. The study is the sole efforts of the researchers.

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