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Article

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EuroEconomica

Provided in Cooperation with:
Danubius University of Galati

Reference: Adeniyi Alao, Abdul-Azeez/Okewale, Joel Adeniyi et. al. (2019). Leverage and liquidity management : evidence from Nigerian consumer goods firms. In: EuroEconomica 38 (2), S. 19 - 32.

EE
E u r o E c o n o m i c a
Issue 2(38)/2019 *ISSN: 1582-8859*

Leverage and Liquidity Management: Evidence from Nigerian Consumer Goods Firms

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Abstract: One of the demanding and challenging corporate decisions that organisations face is the preference of mixture of capital structure while taking into consideration the nexus between profitability and risks. Hence, this paper examined the effect of leverage on the liquidity of Nigerian firms based on the data of seventeen (17) Nigerian consumer goods firms listed on the Nigerian Stock Exchange for the period of 2012 to 2017. The study adopted multiple regression method. The core finding of the study revealed that leverage has significant positive effect on liquidity management among consumer goods firms in Nigeria. Therefore, the study concluded that companies in the consumer goods industry should operate more above break-even point in order to avoid the danger of fluctuations in sales and profits so as to have substantial amount to meet the day-to-day administrative running of the business.

Keywords: Degree of operating leverage; Degree of financial leverage; Degree of combined leverage; Liquidity

JEL Classification. G32; M41

1. Introduction

In modern organisations, the entrenchment of good corporate governance mechanisms as well as the adoption of generally accepted business practices, which altogether were the outcome of various reforms and pronouncements after series of corporate scandals, encourage foreign investment, improve firms' liquidity, boost organisational performance, develop capital markets and also mitigate agency problem between shareholders and managers. Hence, one of the demanding and challenging corporate decisions that an organisation faces is the preference of mixture of capital structure while taking into consideration the nexus between profitability and risks (Titman and Wessel, 1988). Ideally, a good capital structure framework is expected to lead to minimisation of overall cost of capital, maximisation of firms' value and enjoying the benefit of corporate leverage with the occurrence of corporate taxes. Capital structure is considered as a signal in the allocation of cash flow to viable projects hence reduces the chances of market failure (Ross, 1977).

According to Oduol 2011, leverage and liquidity are interrelated as levered company holds liquid assets as a precaution in order to absorb the economic shocks in the market and also to service debt and the

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consequential future fixed charges. Leverage (otherwise called gearing) is the proportion of fixed interest capital (that is, debt and preference share capital) in financing the operations of a firm. Ordinarily the higher the degree of leverage, the higher is the risk involved in meeting fixed payment obligations (Akinsulire, 2011). The liquidity position of a firm can be measured via the nexus between its current assets and current liabilities. Technically, the current asset of a firm is expected to be more than its current liability in order to remain solvent. Liquidity management describes the ability of a firm to meet its financial obligations through adequate cash flows, funding activities and capital management. According to the findings in the work of Myers and Majluf, (1984) as supported in the research of Giannetti (2003), leverage level tends to be high due to agency costs in less developed economies. Hence, firms that have access to public debt tend to be highly leveraged and more liquid.

There is no doubt about the fact that the literature is replete in terms of studies on leverage, however, findings from these studies have remained mixed and contradictory. Many of these studies focused on either financial or operating leverage (Adenugba, Ige and Kesinro 2016; Ahmad, Salman and Shamsi 2015; Enekwe, Agu and Eziedo (2014); Bei and Wijewardana 2012; and Alaghi 2012). Also, to the best of our knowledge, almost all the studies focused on the effect of leverage on profitability (Nwanna and Ivie 2017; Ahmad, Salman and Shamsi 2015; Raheel and Shah 2015; and Moghadam and Jafari 2015) while others in their works only considered very few number of firms and / or years (see Ahmad, Salman and Shamsi 2015; Raheel and Shah (2015); Acheampong, Agalega and Shibu 2014; Kaya (2014); and Adenugba, Ige and Kesinro 2016). Though Oduol (2011) examined the relationship between liquidity and leverage, the study was conducted on quoted firms in Nairobi. However, in a recent work conducted in Nigeria by Nwanna and Ivie (2017) on financial leverage; debt ratio, debt-equity ratio and interest coverage ratio were used as proxies for financial leverage. To this extent, this research examined the effect of leverage (financial, operating and combined) on the liquidity (current ratio) of seventeen (17) quoted manufacturing firms (consumer goods) in Nigeria.

Apart from the introduction (section one) of the paper, other sections follow thus, section two is the review of relevant literature, section three is on the methodology adopted, section four deals with the presentation and discussions of the study's results. Above all, section five concludes the work.

2. Literature Review

Liquidity and solvency normally reflect on the measures of companies' working capital policy (Ahmad and Alghusin, 2015). According to Maness and Zietlow (2005), a low liquidity level can bring about an increase in financial costs thereby result in the incapacity to settle obligations as at when due. Therefore, the optimal level for liquidity can only be achieved via a trade-off between low return of current assets and the advantage of mimimising the call for external finance (Kim, Mauer and Sherman, 1998). The decision relating to the mixture of debt and equity in financing the operation of firms is one of the most challenging decisions usually being made by financial managers in an organisation (Sanyaolu, Job-Olatunji and Ogunmefun, 2018). The risk that is associated with uncertainty in the operation of organisations' cash flows is known as business risk while the additional risk attributable to the earning of shareholders as a consequence of the firm's capital structure is the financial risk. Hence, operating leverage is the factor that influences business risk; financial leverage is the factor that influences

financial risk while combined leverage is the factor that influences both business and financial risks. Operating leverage is the extent to which fixed operating costs (depreciation, insurance of assets, repairs and maintenance, property taxes, etcetera) are being put into use in the operation of organisations. Financial leverage is majorly concerned with the financial activities of a firm which involve raising of funds (long term debt) from various sources for which the firm bears fixed charges.

Discussions on leverage and liquidity of firms more often than not hovered around some theories. Prominent among the theories are trade-off theory, agency theory and pecking order theory. According to trade-off theory, firms delineate their optimal financial structure by maintaining a balance between the costs of taking additional and the benefits derivable. The benefits of leverage include tax deductibility of interest and improved cash flow (Jensen, 1986). Above all, trade-off theory postulates that a firm borrows up to the point that the marginal value of the tax advantage of debt is balanced by the increase in the present value of bankruptcy costs. Pecking order theory is based on the idea that the order of resources prevails over their size. Hence, firms prefer internal financing (if it proves sufficient); resort to borrowing (if internal financing proves insufficient) and as a last option resort to external financing through equity. However, a new pecking order theory has been designed for developed countries which is characterised by a reassessment of the financing preference thus; retained earnings, equity and lastly long term debt. Lastly, agency theory explains the relationship between shareholders (principals) and managers (agents) where the agents are expected to act in the interest of the principals but seek several personal benefits at the expense of the owners.

Mulyana, Zuraida and Saputra (2018) investigated the influence of liquidity, profitability and leverage on earnings management and its impact on the value of one hundred and fifty (150) manufacturing companies listed on the Indonesia Stock Exchange from 2011 to 2015. The study's results revealed that liquidity, profitability and leverage collectively and individually have effect on both the firms' earnings management as well as the value. Similarly, Sidhu (2018) investigated the impact of leverage on stock market liquidity of one hundred and eight-seven (187) Indian firms from 2009 to 2013. The multiple regression models were adopted in testing the hypotheses. The results revealed a negative relationship between stock market liquidity and firms' leverage. Hence, a low level of debt is likely to resort to high stock market liquidity. In the same vein, **Moghaddam and Abbaspour (2017) investigated the effect of leverage and liquidity ratios on earnings management and capital of fourteen (14) banks listed on the Tehran Stock Exchange from 2010 to 2015. The study adopted the multivariate linear regression models via panel data. The results revealed that degree of financial leverage and liquidity ratios have positive and significant effect on earnings management of banks.**

From another perspective, Nabeel and Hussain (2017) studied the effect of liquidity management (current, quick, cash, interest coverage and capital adequacy ratios) on banks' profitability [Return on Assets (ROA), Return on Equity (ROE) and Earnings per Share (EPS)] in Pakistan. The study sampled ten (10) banks in Pakistan from 2006 to 2015. The study adopted both the correlation and regression techniques in testing the hypotheses. The study reported that interest coverage, capital adequacy and quick ratios have positive while cash and current ratios have a negative relationship with banks' profitability proxy with ROA, ROE and EPS. Similarly, Nwanna and Ivie (2017) examined the effect of financial leverage (debt ratio, debt-equity ratio and interest coverage ratio) on firms' performance (profitability, size, liquidity, managerial efficiency and market capitalisation value) of thirteen (13)

quoted banks in Nigeria from 2006 to 2015. The study employed the multiple regression models to test the effect of the independent variables on the dependent variables. After the analysis, it was reported that financial leverage has a positive effect on both profitability and managerial efficiency while on the other hand; financial leverage has no significant effect on liquidity, size and market capitalisation value.

Furthermore, Edem (2017) investigated the impact of liquidity management (liquidity ratio, loan to deposit ratio and cash reserve ratio) and performance (Return on Equity) of twenty-four (24) Deposit Money Banks (DMBs) in Nigeria from 1986 to 2011. The study adopted multiple linear regression and correlation coefficient models in testing the study's hypotheses. The regression results revealed that there is a significant relationship between liquidity management measures and return on equity of (DMBs) in Nigeria. The correlation results reported a positive impact of liquidity management measures (liquidity and cash reserve ratios) on return on equity of (DMBs) in Nigeria while loan to deposit ratio revealed a negative impact. Adenugba, Ige and Kesinro (2016) investigated the relationship between financial leverage and firms' value among five (5) selected firms listed on the Nigerian Stock Exchange from 2007 to 2012. The study used Ordinary Least Square (OLS) statistical technique to test the hypotheses. The study revealed that there is significant relationship between financial leverage and firms' value. Above all, financial leverage is seen as a better source of finance than equity when there is the need to finance long term projects.

Gombola, Ho and Huang (2016) examined the effect of leverage and liquidity on earnings and capital management of U.S. commercial banks from 1999 to 2003. The result of the study showed a negative relationship between earnings management and liquidity measures if all other things being equal, aggressive earnings management behaviour metamorphosed into aggressive leverage and liquidity policies. Hussan (2016) examined the impact of leverage on risk of selected companies in Bangladesh via the use of regression analysis in testing the hypotheses. The study revealed that leverage has positive impact on the risk of companies in Bangladesh. Ahmad (2016) studied the relationship between liquidity management (current ratio, quick ratio and net working capital) and profitability (gross profit and net profit) of Standard Chartered Bank, Pakistan from 2004 to 2013. The correlation coefficient model was adopted in the study. The results revealed a weak positive relationship between almost all the liquidity ratios and profitability. That is, current ratio has a weak negative relationship with profitability; quick ratio has a moderate relationship with profitability while net working capital has a very weak positive relationship with profitability. Hiadlovsky, Rybovicova and Vinczeova (2016) studied the importance of liquidity analysis in the process of financial management of one hundred and eighty-eight (188) companies operating in the tourism sector in Slovakia from 2011 to 2014. The results revealed that there is a weak relationship between liquidity management and profitability of selected companies.

Also, Ghasemi and Ab Razak (2016) examined the effect of liquidity (current and quick ratios) on the capital structure (debt-equity and debt-asset ratios) among three hundred (300) listed companies listed on the Main Market of Bursa, Malaysia from 2005 to 2013. The pooled ordinary least square regression was adopted. The results revealed that the study's liquidity measures have significant effect on the study's measures of leverage. However, it was further reported that quick ratio has a positive effect on leverage while current ratio is negatively related to leverage. Raheel and Shah (2015) in their research studied the relationship between the financial leverage and firms' profitability of five (5) oil and gas marketing companies listed on Karachi Stock Exchange from 2007 to 2012. In a similar manner to the

present research, the study used the Degree of Financial Leverage (DFL), Degree of Operating Leverage (DOL) and Degree of Combined Leverage (DCL) to proxy the independent variable, leverage while the dependent variable, profitability was measured via Earnings per Share (EPS). Correlation coefficient and linear regression models were adopted in testing the study's hypotheses. Above all, the results revealed that DFL, DOL and DCL have no significant relationship with EPS.

Ahmad, Salman and Shamsi (2015) examined the impact of financial leverage on firms' profitability in the cement sector of Pakistan. The study considered eighteen (18) cement firms and reported that financial leverage has a statistically significant inverse impact on profitability. Ahmad and Alghusin (2015) investigated the impact of financial leverage, companies' growth and firms' size on profitability of twenty five (25) Jordanian industrial companies listed on the Amman Sock Exchange from 1995 to 2005 with the use of the pooled regression type of panel data analysis. The study revealed that financial leverage has significant effect on the profitability of industrial companies. Moghadam and Jafari (2015) described the role of financial leverage in the performance of one hundred and fifteen (115) companies listed on the Tehran Stock Exchange from 2007 to 2012. The study revealed that financial leverage has a positive significant relationship with the performance of companies listed on the Tehran Stock Exchange. More so, it was reported that companies with higher debt ratio are more profitable.

Goel, Chadha and Sharma (2015) examined the effect of operating liquidity and financial leverage on the performance of one hundred and fifty-one (151) machinery firms in Indian from 2004 to 2013. The study adopted both ratio analysis and panel data regression model. It was reported that there is significant impact between financial leverage and different measures of operating liquidity. Onofrei, Tudose, Durdureanu and Anton (2015) examined the determinant factors of firms' leverage among three hundred and eight-five (385) micro and small enterprises in Romania from 2008 to 2010. It was reported that leverage is negatively related to liquidity. Acheampong, Agalega and Shibu (2014) examined the effect of financial leverage and market size of selected stocks on stock returns of five (5) manufacturing firms listed on Ghana Stock Exchange from 2006 to 2010. The study adopted Ordinary Least Square (OLS) regression methods. The results established a negative and significant relationship between leverage and stock return for the industrial data.

Enekwe, Agu and Eziedo (2014) examined the effect of financial leverage on financial performance of three (3) quoted pharmaceutical companies in Nigeria from 2001 to 2012. The study used both Pearson correlation and regression model to the hypotheses. The study reported debt ratio and debt-equity ratio (financial leverage) have negative relationship with return on assets (financial performance) in the Nigerian pharmaceutical industry. Kaya (2014) examined the impact of leverage on U.S trade firms' profitability and liquidity measures from 2000 to 2005. The study revealed that highly levered retail and wholesale trade firms have a tendency to suffer from liquidity problem while highly levered retail firms have a tendency to suffer from profitability problem. However, the results for highly levered wholesale firms are mixed. Above all, it was reported that higher return on equity for highly levered wholesale firms was as a result of severely depressed equity values. Patel (2014) studied the relationship between leverage (operating leverage, financial leverage and total leverage) and profitability [Return on Capital Employed (ROCE), Return on Equity (ROE), Return on Assets (ROA) and Earnings per Share (EPS)] of Sabar Dairy, a milk processing firm based in Gujarat State, India from 1986 to 2014. The regression models were employed to test the hypotheses. The findings revealed that leverage has an insignificant

positive effect on ROCE, ROE and EPS while for ROA, degree of operating leverage has a significant positive effect; degree of financial leverage has an insignificant negative effect and degree of total leverage has an insignificant positive effect.

Alzorqan (2014) examined the relationship between bank liquidity risk (current ratio and loans to deposit ratio) and performance (return on investment and return on equity) of two (2) banks in Jordan from 2008 to 2012. The study adopted regression analysis to test the hypotheses. **The results revealed that current ratio has significant effect on return on investment as well as return on equity while loans to deposit ratio also has significant effect on return on investment and return on equity.** Ibe (2013) examined the impact of liquidity management (cash and short term fund, bank balances and treasury bills and certificate) on the profitability (profit after tax) of three (3) selected banks in Nigeria from 1995 to 2010. The study used regression models to test the hypotheses. The results revealed a significant relationship between liquidity and banks' profitability. Lartey, Antwi and Boadi (2013) investigated the relationship between liquidity (temporary investment ratios) and profitability (return on assets) of seven (7) banks listed on Ghana Stock Exchange for the period from 2005 to 2010. The results revealed a weak positive relationship between liquidity and profitability of the listed banks in Ghana.

Alaghi (2012) examined the effect of operating leverage on the systematic risk of fifty-eight (58) listed companies on Tehran Stock Exchange from 2006 to 2009. The linear regression technique was adopted in testing the study's hypotheses. After the analysis, the results revealed that operating leverage has no effect whatsoever on the systematic risk of companies. Alkhatib (2012) investigated the determinants of leverage among one hundred and twenty-one (121) listed companies (from industrial and services sectors) on the Jordanian Stock Exchange (JSC) from 2007 to 2010. The study used regression model to test the hypotheses. The results revealed that liquidity has significant relationship with leverage for the industrial and service sectors of Jordan. Above all, the study confirmed that there is a nexus between firm and economic variable on one hand and leverage on the other hand. Bei and Wijewardana (2012) made an attempt to investigate whether financial leverage influences either negatively or positively on signaling the firm's growth. The study considered sixty-two (62) firms in Sri Lanka from 2000 to 2009. The study revealed that financial leverage is positively related to firms' growth and financial strength in Sri Lanka's firms.

Sarlija and Harc (2012) investigated the impact of liquidity on the capital structure of one thousand and fifty-eight (1058) Croatian firms for year 2009. The study employed Pearson correlation coefficient to examine the connection among liquidity ratios and debt ratios; the share of retained earnings to capital and liquidity ratios on one hand, and the relationship between the compositions of current assets and leverage on the other hand. Finally, it was reported that liquidity ratios and leverage ratios as well as leverage ratios and the compositions of current assets are significantly correlated. Furthermore, the study revealed that the connection between liquidity ratios and short term leverage is stronger than the kind of connection between liquidity ratios and the long term leverage. Oduol (2011) examined the relationship between liquidity and leverage of companies quoted at the Nairobi Stock Exchange (NSE). The study focused on thirty (30) quoted firms on the NSE from 2006 to 2010. Secondary data were sourced and analysed via multivariate regression analysis. The finding revealed that there is a negative and insignificant relationship between liquidity and leverage. Hence, it was suggested that organisations should put in place good working capital management practice as well as short cash conversion cycles.

Myers and Rajan (1998) in their paper titled "The paradox of liquidity" considered the dark side of liquidity. They posited that the more liquid firms' assets are, the higher their value in liquidation. Hence, higher assets liquidity has the tendency to reduce the firms' capacity to raise external finance.

3. Methodology

The study adopted ex-post facto research design because data were readily available and obtained from the annual reports and accounts of the selected seventeen (17) consumer goods firms [out of twenty-eight (28)] listed on the Nigerian Stock Exchange as at 31st December, 2018 via purposive sampling technique. The study covered a period of 2012 to 2017. The multiple regression method was adopted which comprises Ordinary Least Square (OLS), Fixed Effect Least Square and Random Effect Generalised Method). These are consistent with some prior studies (see Oduol 2011; Goel, Chadha and Sharma 2015; Adenugba, Ige and Kesinro 2016; Ghasemi and Ab Razak 2016)

3.1. Variable Description and Development of Hypotheses

Dependent variable

Current Ratio (CR): This is the regressand adopted by the study. It is one of the parameters of measuring firms' liquidity which shows the proportion of firms' current asset to current liability.

Independent variables

The three independent variables are used to proxy leverage. They are – Degree of Operating Leverage (DOL), Degree of Financial Leverage (DFL) and Degree of Combined Leverage (DCL).

3.3. Model Specification

Model 1: $CR_{it} = \beta_0+\beta_1 DOL_{it} + \beta_2 DFL_{it} + \beta_3 DCL_{it} + LSIZE_{it} + e_{it}$…….. (3.1)

Where:

CR_{it}= Current Ratio of firm in period t

DOL_{it} = Degree of Operating Leverage of firm in period t

DFL_{it} =Degree of Financial Leverage of firm in period t

DCL_{it} =Degree of Combined Leverage of firm in period t

$LSIZE_{it}$=Natural logarithm of total asset of firm i in period t

e_{it} = Error Term of firm in period t

3.4. Measurement

Table 1. Measurement of the Study's Variables

Variable	Acronym	Measure	Expected effect
Dependent variables			
Current Ratio	CR	Current Assets / Curent Liabilities	
Independent variables			
Degree of Operating Leverage	DOL	Percentage (%) change in EBIT / Percentage (%) change in Sales	+
Degree of Financial Leverage	DFL	Percentage (%) change in EPS / Percentage (%) change in EBIT	+
Degree of Combined Leverage	DCL	DOL x DFL	+
Size	LSIZE	Natural logarithm of total asset	+

Source: Authors' compilation, 2019.

4. Results and Discussion

4.1. Descriptive Statistics

Table 2 below presents the description of the study's variables. It reveals that average liquidity is 1.16%, with a corresponding minimum value of 0.07% and maximum value of 2.88%. One period lag of liquidity maintains an average value of 1.15% with corresponding minimum of 0.07% and maximum of 2.88%. The degree of operating leverage is averaged 20% and ranges from -109.2% to 1293.1%. Degree of financial leverage has a mean value of 65.9% and ranges from -147.8% to 3886.3%. Degree of combined leverage shows a mean value of 37.9% and ranges from -109% to 770%. Finally, firm size has an average value of 17.6 and ranges from 14.27 to 17.60.

Table 2. Summary of Descriptive Statistics

	CR	CR(-1)	DOL	DFL	DCL	LSIZE
Mean	1.157061	1.149029	20.03580	65.86991	37.93521	17.60089
Maximum	2.880813	2.880813	1293.101	3886.371	769.9610	22.39647
Minimum	0.073989	0.073989	-109.2188	-147.7980	-109.0000	14.26661
Std. Dev.	0.564033	0.573345	138.1748	407.1527	117.5940	1.575751
Skewness	0.797068	0.847074	8.191359	8.401370	4.144132	-0.193004
Kurtosis	3.541615	3.547646	73.52135	77.91062	22.11926	2.776820
Observations	102	85	102	102	102	102

Source: Researchers' Computation, 2019

4.2. Correlation

The correlation coefficients of the dependent and independent variables are displayed in table 3 below. Degree of operating and degree of financial leverage are positively related with CR but are found not to to be strong. This implies that increase in degree of operating and financial leverage translates to higher liquidity. The relationship between combined leverage and liquidity is negative and weak. This implies that unique combination of leverage translate to lower liquidity in listed consumer goods companies in Nigerian. Also, firm size has a weak and negative correlation with log of size.

Table 3. Correlation Matrix

Variables	CR	CR(-1)	DOL	DFL	DCL	LISZE
CR	1.000					
CR(-1)	0.69514	1.000				
DOL	0.01891	0.1244	1.000			
DFL	0.04658	0.0763	-0.0260	1.000		
DCL	-0.23202	-0.0783	0.5617	0.003281	1.000	
LSIZE	-0.25883	-0.2282	-0.0230	0.114101	0.153815	1.000

Source: Authors computation, 2019.

4.3. Multicollinearity Test

Variance Inflation Factor (VIF) approach was used in testing for the existence of multicollinearity between the explanatory variables. A VIF value of within 10 of any independent variables is said to be normal for a meaningful, unbiased and reliable estimation Gujarati (2003), Rumsey (2007), Gujarati and Porter (2009) and Wooldridge (2009) as any figure in excess of 10 as implies the existence of multicollineraity which can distort the inferences to be made from the analysis. Therefore, as shown in Table 4 below, none of the independent variables has VIF up to 10. It ranges from 1.048 to 1.048 and with average value of 1.032. This shows that there is no problem of multicollinearity among the explanatory variables.

Table 4. Collinearity test

Variable VIF 1/VIF
DOL 1.048 .954 DFL 1.001 .999 DCL 1.048 .954 LSIZE 1.002 .998
Average1.025 .9762

Source: Researchers' Computation, 2019

4.4. Regression

Regression results using pooled Ordinary Least Squares (OLS) technique for each of the models are presented in Tables 5.

Table 5. Model Estimation Results Summary

		Dependent variable (CR)							
Independent variables	Pooled			Fixed			Random		
	Coef.	T-stat	Prob.	Coef.	T-value	Prob.	Coef.	T-value	Prob.
C	0.9210	1.7683	0.081	-0.271	-0.1607	0.8729	0.9210	1.7444	0.0850
CR(-1)	0.6300	7.9687	0.0000	0.2887	1.6981	0.0945	0.6301	7.8609	0.0000
DOL	0.0004	0.4557	0.6498	0.0002	0.1784	0.8590	0.0004	0.4495	0.6543
DFL	8.96E-	0.0921	0.9268	1.46E-	0.1290	0.8978	8.96E-	0.0909	0.9278
DCL	-0.001	-1.982	0.0510	-0.001	-1.091	0.2796	-0.001	-1.9548	0.0542
LSIZE	-0.027	-0.963	0.3383	0.0620	0.6663	0.5077	-0.027	-0.9503	0.3449
R-Squared	0.5224			0.6099					
Adj. R-Squared	0.4918			0.4778					
F – statistic	17.066			4.6163					
Prob. (F – statistic)	0.0000			0.000					
Durbin – Watson	1.6363			1.7533			1.6363		
Hausman Test (Prob.)	7.7954	5	0.1679						

Source: Researchers' Computation, 2019

The F-statistic values for the model is significant for the OLS, Fixed Effect and Random Effect at 1% level (prob value = 0.000). It depicts that the models as a whole is fit. With Durbin-Watson values of 1.6363, 1.7533 and 1.636373 for the OLS fixed effect and random effect respectively are within the acceptable threshold of 1 to 3 (Gujarati, 2003, Asaeed, 2005 and Gujarati and Porter, 2009) shows that the model has no serial autocorrelation issues. Also, Random effect is the appropriate model for testing of hypotheses giving the probability of Hausman test which is not significant at any level of significance.

4.5. Discussion

In the regression model above, previous year liquidity has significant positive influence on current year liquidity. This implies that firm musfot maintain adequate liquidity ratio in previous year for improvement of current year liquidity. Also, the random effect regression results indicate that DOL has an insignificant positive effect on liquidity (CR) at 5% level of significance. This means that the higher the degree of operating leverage, the higher the liquidity. This finding is in tandem with a priori

expectation of the study as well as the findings in previous works. (See Sarlija and Harc 2012; Oduol 2011). Hence, the null hypothesis which states that degree of financial leverage has no significant positive effect on profitability is hereby validated.

Also, the degree of financial leverage was found to exert insignificant positive effect on liquidity, the regression result under random effect shows that DFL has a positive but insignificant effect on liquidity at 10% level. It suggests that the higher the debt in the overall financial structure of a firm, the higher the liquidity even though it was found not to be significant. Thus, financial leverage has no significant positive effect on liquidity. This finding is partially in alignment with a priori expectation. Some prior empirical studies like (Sarlija and Harc 2012; Oduol 2011) have found similar results. However, the finding is in contrary to the result obtained by Adenugba, Ige and Kesinro (2016) where it was reported that there is significant relationship between financial leverage and firms' value, though the study focused on firms' value.

The degree of combined leverage as a proxy for leverage reveals that DCL exerts significant negative effect on liquidity (CR). Implying that the higher the combined leverage, the lower the liquidity. This finding is in alignment, but it is not significant. The finding is consistent with the studies conducted by (Ghasemi and Ab Razak 2016; Oduol 2011). Hence, we therefore rejected the null hypothesis that degree of combined leverage has no significant positive effect on liquidity.

Finally, firm size as a control variable exerts negative and no significant influence on liquidity of consumer goods companies in Nigeria.

5. Conclusion

This paper examined the effect of leverage on liquidity using pooled Ordinary Least Squares (OLS) technique to data on seventeen (17) consumer goods companies in Nigeria from 2012 to 2017. The study's findings revealed that leverage has significant positive joint effect on liquidity. Furthermore, it was discovered that degree of operating leverage as well as degree of financial leverage exerts an insignificant positive effect on liquidity while degree of combined leverage has a significant negative effect on liquidity. Perhaps, this revelation must have been a reflection of the fact that leverage is a long term goal while liquidity is a short term goal and a function of day-to-day commitments. Therefore, it becomes imperative for companies in the consumer goods industry to operate more above break-even point in order to avoid the danger of fluctuations in sales and profits so as to have substantial amount to meet the day-to-day administrative running of the business. This is because a company with high degree of leverage will have to make sufficient contribution to cover its fixed costs before talking about profit.

References

Acheampong, P., Agalega, E. & Shibu, A. K. (2014). The effect of financial leverage and market size on stock returns on the Ghana Stock Exchange: Evidence from selected stocks in the Manufacturing sector. *International Journal of Financial Research*, 5 (1), 125 – 134.

Adenugba, A. A., Ige, A. A. & Kesinro, O. R. (2016). Financial leverage and firms' value: A study of selected firms in Nigeria, *European Journal of Research and Reflection in Management Sciences*, 4 (1), 14 – 32.

Ahmad, R. (2016). A study of relationship between liquidity and profitability of Standard Chartered Bank Pakistan: Analysis of financial statement approach. *Global Journal of Management and Business Research*, 16 (1), 77 – 82.

Ahmad, N., Salman, A. & Shamsi, A. (2015). Impact of financial leverage on firms' profitability: An investigation from cement sector of Pakistan. *Research Journal of Financial Accounting*, 6 (7), 75 – 80.

Ahmad, N. & Alghusin, S. (2015). The impact of financial leverage, growth and size on profitability of Jordanian industrial listed companies. *Research Journal of Finance and Accounting*, 6 (16), 86 – 93.

Akinsulire, O. (2011). *Financial management*. Lagos: Ceemol Nigeria Limited.

Alaghi, K. (2012). Operating leverage and systematic risk. *African Journal of Business Management*, 6 (3), 1095 – 1099.

Alkhatib, K. (2012). The determinants of leverage of listed companies. *International Journal of Business and Social Science*, 3 (24), 78 – 83.

Alzorqan, S. T. (2014). Bank liquidity risk and performance: An empirical study of the banking system in Jordan. *Research Journal of Finance and Accounting*, 5 (12), 155 – 164.

Asaeed, K. (2005). The association between firm--specific characteristics and disclosure: The case of Saudi Arabia. *The Journal of American Academy of Business*, 7(1), 310-321.

Bei, Z. & Wijewardana, W. P. (2012). Financial leverage, firm growth and financial strength in the listed companies in Sri Lanka. *Procedia – Social and Behavioural Sciences*, (40), 709 – 715.

Edem, D. B. (2017). Liquidity management and performance of Deposit Money Banks in Nigeria (1986 – 2011): An investigation. *International Journal of Economics, Finance and Management Sciences*, 5 (3), 146 – 161.

Enekwe, C. I., Agu, C. I. & Eziedo, K. N. (2014). The effect of financial leverage on financial performance: Evidence of quoted pharmaceutical companies in Nigeria. IOSR *Journal of Economics and Finance*, 5 (3), 17 – 25.

Ghasemi, M. & Ab Razak, N. H. (2016). The impact of liquidity on the capital structure: Evidence from Malaysia. *International Journal of Economics and Finance*, 8 (10), 130 – 139.

Giannetti, M. (2003). Do better institutions mitigate agency problems? Evidence from corporate finance choices. *Journal of Financial and Quantitative Analysis*, 38, 185 – 212.

Gombola, M. J., Ho, A.Y. & Huang, C. (2016). The effect of leverage and liquidity on earnings and capital management: Evidence from U.S. commercial banks. *International Review of Economics and finance*, (43), 35 – 58.

Gujarati, D. N. (2003). *Basic Econometrics*. New York, McGraw-Hill/Irwin.

Gujarati, D. N. & Porter, D. C. (2009). *Basic Econometrics*. New York: McGraw-Hill/Irwin.

Gujarati, D. N. & Sangeetha, N. (2008). *Basic Econometrics*. 4th edition, New Delhi: Tata McGraw Hill Publishing Company.

Hausman, J. A. (1978). Specification tests in econometrics. *Econometrica*, 46(6), 1215-1271.

Hiadlovsky, V., Rybovicova, I. & Vinczeova, M. (2016). Importance of liquidity analysis in the process of financial management of companies operating in the tourism sector in Slovakia: An empirical study. *International Journal for Quality Research*, 10 (4), 799 – 812.

Hussan, J. (2016). Impact of leverage on risk of companies. *Journal of Civil & Legal Sciences*, 5 (4), doi:10.4172/2169-0170.1000200

Ibe, S. O. (2013). The impact of liquidity management on the profitability of banks in Nigeria. *Journal of Finance and Bank Management*, 1 (1), 37 – 48.

Jensen, M. (1986). Agency costs of free cash flow, corporate finance and takeovers. *American Economic Review*, 76, 323–329.

Kaya, H. D. (2014). The impact of leverage on trade firms' profitability and liquidity measures. *International Journal of Business and Social Science*, 5 (3), 66 – 70.

Kim, C. S., Mauer, D. S. & Sherman, A. E. (1998). The Determinants of corporate liquidity: Theory and evidence. *Journal of Financial and Quantitative Analysis*, 33(3), 335-359.

Lartey, V. C., Antwi, S. & Boadi, E. K. (2013). The relationship between liquidity and profitability of listed banks in Ghana. *International Journal of Business and Social Science*, 4 (3), 48 – 56.

Maness, T. S. & Zietlow, J. T. (2005). *Short-term Financial Management*. Ohio: South- Western/Thomson Learning.

Moghaddam, A. & Abbaspour, N. (2017). The effect of leverage and liquidity ratios on earnings management and capital of banks listed on the Tehran Stock Exchange. *International Review of Management and Marketing*, 7 (4), 99 – 107.

Moghadam, D. M. & Jafari, M. (2015). The role of financial leverage in the performance of companies listed in the stock exchange, *Indian Journal of Natural Sciences*, 5 (30), 7402 – 7657.

Mulyana, A., Zuraida & Saputra, M. (2018). The influence of liquidity, profitability and leverage on profit management and its impact on company value in manufacturing company listed on Indonesia Stock Exchange Year 2011 – 2015. *International Journal of Management Studies and Research*, 6 (1), 8 – 14.

Myers, S. & Majluf, N. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13, 187 – 221.

Myers, S. C. & Rajan, R. G. (1998). The paradox of liquidity. *The Quarterly Journal of Economics*, 113 (3), 733 – 771. doi: 10.1162/003355398555739.

Nabeel, M. & Hussain, S. M. (2017). Liquidity management and its impact on banks profitability: A perspective of Pakistan. *International Journal of Business and Management Invention*, 6 (5), 28 – 33.

Nigerian Stock Exchange (2010-2016). *Fact Book*, Lagos.

Nwanna, I. O. & Ivie, G. (2017). Effect of financial leverage on firm's performance: A study of Nigerian banks. *International Journal of Recent Scientific Research*, 8 (7), 18554 – 18564.

Oduol, E. O. (2011). The relationship between liquidity and leverage of companies quoted at the NSE. *A research project submitted in partial fulfillment of the requirements for the award of Degree of Master of Business Administration* (MBA) of the University of Nairobi.

Onofrei, M., Tudose, M. B., Durdureanu, C. & Anton, S. G. (2015). Determinant factors of firm leverage: An empirical analysis at Lasi county level. *Procedia Economics and Finance*, (20), 460 – 466.

Patel, J. B. (2014). Impact of leverage on profitability: A study of Sabar Dairy. *Research Hub – International Multidisciplinary Research*, 1 (3), 1 – 6.

Raheel, T. & Shah, F. M. (2015). A study that identify the relationship between the financial leverage and firms profitability: Empirical evidence from oil and gas companies of Pakistan listed in KSE. *International Journal of Scientific & Engineering Research*, 6 (11), 80 – 88.

Ross, S. (1977). The determination of financial structure: the incentive – signaling approach. *The bell journal of economics*, 8(1), 23 – 40.

Rumsey, D. (2007). *Intermediate Statistics for Dummies.* Indianapolis, Wiley Publishing Inc.

Sanyaolu, W. A., Job-Olatunji, K. A. & Ogunmefun, G. T. (2018). Determinants of capital structure in Nigeria. *Accounting and Taxation review*, 2 (3), 1 – 12.

Sarlija, N. & Harc, M. (2012). The impact of liquidity on the capital structure: A case study of Croatian firms. *Business Systems Research*, 3 (1), 30 – 36.

Sidhu, M. K. (2018). Impact of leverage of a company on stock market liquidity in Indian markets. *IOSR Journal of Business and Management*, 20 (1), 1 – 8.

Titman, S. & Wessels, R. (1988). The determinants of capital structure and choice. *Journal of Finance*, 43, 1 - 19.

Wooldridge, J. M. (2009). *Introductory Econometrics: A Modern Approach*, 4th Edition. Cambridge: USA Cengage Learning.