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Gusau Journal of Accounting and Finance, Vol. 4, Issue 1, April, 2023

LIQUIDITY RISK AND PERFORMANCE OF NON-FINANCIAL FIRMS LISTED ON THE NIGERIAN STOCK EXCHANGE

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Abstract
This study has examined the effect of liquidity risk on performance of non-financial firms listed on the Nigerian Stock Exchange. The main objective was to assess the degree of influence liquidity risk measured by (standard deviation of quick ratio and current ratio) have on performance (return on assets) of the non-financial firms in Nigeria. Data from all the 87 non-financial firms listed on NSE were extracted through financial reports and analyzed using descriptive statistics, correlation and regression through STATA version 16. The findings revealed that current ratio have negative and significant effect on performance, while the quick ratio was not significant in influencing performance. The result implies that an increase in liquidity risk (difficulty in running the operations and offsetting short term maturing obligations), leads to a significant decrease in performance of the firms. The result also confirms that the standard deviation of current ratio provides better measurement of liquidity risk. It was however concluded that, liquidity risk has negative and significant effect on performance of firms in Nigeria. The study recommends that more attention should be given to liquidity management to minimize the risk of insolvency or bankruptcy of firms in Nigeria as such will help in reducing liquidity risk issues and improve performance of the non-financial firms in Nigeria.

Keywords: Liquidity Risk, Liquidity, Performance, Non-Financial Firms.
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1. Introduction

The non-financial firms constitute the bedrock of any economy as they contribute immensely to the growth and development of any country. The sector comprises both non-financial services as well as the manufacturing and agriculture. Ishola and Olusoji (2020) reported that about 80% of U.S, and 60% of India gross domestic product (GDP) comes from the non-financial sector economic activities. Also among African countries, the contribution of these sectors to the GDP in Uganda is 40%, and 50% in Zambia. In Nigeria, this sector recorded between 70% and 80% of the GDP from 2016 to 2021 (Statista, 2022). These reports simply indicate how significant the survival of the sector to the development of the country. According to Sodiq (2022) food business, real estate, e-commerce and logistics, which are also part of the non-financial firms, are the fastest growing businesses in Africa especially in Nigeria, South Africa, Kenya, Ethiopia, Ghana and Mauritus. A report shows that 53% of the service sector GDP comes from the non-financial services (Nigerian Investment Promotion Commission, 2022). These simply implies that, the non-financial sector contributes larger to the economy, and thus such sector performance is vital for growth and development of the country. Madaleno and Barbuta-Misu (2019) in a study from 2006 to 2015, and found economic and financial crisis, liquidity, assets turnover, and labour productivity, are the major factors influencing financial performance of firms in European countries.

Liquidity is an important factor that shows the ability of the firms to meet short-term maturing obligations. Mbah et al. (2018) confirms that manufacturing firms in Nigeria are facing decline in performance due to reduction in share prices, low-capacity utilization, high labour turnover, high inventory turnover, slowing gross domestic product, high inflation and interest rates because they limit liquidity, or the amount of money available to invest. Also, Khan (2022) discovered that credit-rationed businesses in Europe were less likely to receive short-term bank financing and were more likely to have more liquidity and cash flow issues. Similarly, liquidity problem has made it difficult for some manufacturing firms in Nigeria to pay dividends (Duru et al., 2014). Babatope et al. (2021), and Olusi and Ibrahim (2021) states that consumer goods firms in Nigeria are experiencing decline in sales revenue due to inflation, fall in naira value and low income of consumers resulting in to liquidity problems and decline in profits. Similarly, Cole, et al. (2022) states that manufacturing and FMCG firms in Nigeria suffered lower production output and reduced profitability basically due to cost pressures, and if nothing is done by stakeholders, the manufacturing industry will continue to experience rise in operational costs emanating from foreign exchange increase, illiquidity, inflation, low income, poor infrastructure, and other shipping challenges. It is therefore

extremely important for managers of firms to ensure effective and efficient liquidity management without having adverse effect on profitability. Also, in response to some of these issues the Central Bank of Nigeria (CBN) has recently recommended the Manufacturers Association of Nigeria (MAN) to contact development financing institutions for their funding requirements, notably the development bank of Nigeria and bank of Industry (CBN, 2022). Thus, this effort by the CBN would go a long way in minimizing the liquidity issues of the non-financial sector firms in Nigeria.

In view of the issues raised above, the major gap identified include; most previous studies were focused more on liquidity and performance, and the few that examined the risk aspect of liquidity used weak measurement without taking care of the risk aspect. The notable studies on liquidity risk and profitability and performance (Rudhani, et al., 2016; Chen, et al., 2018; Effiong and Enya, 2020; Khan, et al., 2020) were examined outside Nigeria and in the financial sector. However, a study was also observed in the Nigerian banking industry linking liquidity risk with profitability (Akindele & Odusina, 2015). In light of this, review of empirical literature shows that no study has examined liquidity risk in the non-financial sector of Nigeria, serving as a major contribution of the present study. Also, previous studies mostly looked at the sub sectors of the non-financial firms or the financial sector, which makes it difficult to generalize across all the sectors. The reason is that the financial sector is more highly regulated when compared to the non-financial sector, hence the tendency of serious liquidity issues. Thus, this study has adopted standard deviation of both current and quick ratios as proxies for liquidity risk which considered the tendency of firms to face difficulty or even make losses when financing their short term maturing obligations. In view of the above, this paper aimed to achieve the following objectives:

i. To examined the effect of liquidity risk (SD of Quick Ratio) on performance of non-financial firms in Nigeria.
ii. To evaluate the effect of liquidity risk (SD of Current Ratio) on performance of non-financial firms in Nigeria.

2. Literature Review

Performance evaluation is a management tool used to determine how far an organization's goal has been achieved, examine how its operations are being carried out, its director, its divisions, and its employees, as well as to predict future organisational goals (Syafa and Haron, 2019). An effective performance assessment index is one of the key factors in the firm's success (Bhagat and Bolton, 2019). Firm's performance is dependent on both the stakeholders' and the

organization's economic perspectives of meeting investors needs while maximising profits for the same organisation (Aifuwa, 2019). Akenga (2017) viewed financial performance as monetary evaluation of a company's activities over time, typically through the calculation of return on assets or return on equity.

The liquidity position and management is an issue of interest by all stakeholders as it determines the performance and success of the firm. It simply means the funds needed to finance short term debts. In other words, Kurfi (2010) describe liquidity as the short term assets and obligations of the firm. Thus, if a firm can easily convert its short term assets in to cash or even pay short term debts, such firm is said to be liquid and vice verca. Also, Greenaway, et al. (2007) measure liquidity in terms of the excess of liquid assets over short term liabilities. In addition, proper liquidity management, ensures smooth operations of the firm's activities and improve chances profitability and success (Effiong and Enya, 2020). However, according to Akenga (2017), the true measurements of liquidity are the current ratio, quick ratio, and cash conversion cycle. The capacity of a firm to meet short-term maturing obligations without suffering a loss was further defined as liquidity risk.

Liquidity risk describe the low financial ability of a firm to satisfy its obligations as at when due or become outstanding without negatively affecting its operations. Liquidity risk, according to Noor and Abdulla (2014), is the risk connected to an investment's inability to be bought or sold quickly enough to prevent or minimize a loss. The potential for a particular security or asset to not be able to be traded in the market quickly enough to prevent a loss (or make the required profit). Similarly, according to Murithi and Waweru (2017), liquidity risk can occur as a result of liquidity mismatch, which could be determine in terms of liquidity gap. The excess of a company's short-term assets over liabilities is referred to as the liquidity gap. They assess whether this gap is favourable or unfavourable. A favourable gap occurs when the company has liquid assets left over after all liabilities have been paid for, while an unfavourable gap occurs when the firm's net income is less than the amount of liabilities accepted. Accordingly, Muriithi and Waweru (2017) opined that break down or delays in cash flows from debtors may cause liquidity risk problems. Also, explained that economic crisis and sometimes ineffective corporate governance or management may leads to liquidity risk. In view of the above, this study adopts the liquidity gap perspective, that is, the *quick ratio* as measures of firm's liquidity risk. Standard deviation would be attached to measure the riskiness aspect of the liquidity.

There have been important studies looking at the connection between firm performance and liquidity in the literature. Some of such researches found positive

relationships while some found negative or mixed links. For example; Rudhani, et al. (2016) found liquidity risk having negative effect on profitability of banks but could be improved by increasing lending and other investments, while ensuring efficiency in liquidity management. A negative association between liquidity risk and bank performance was also confirmed by (Chen, et al., 2018). It was further clarified that the main drivers of liquidity risk are dependency on external funds, liquid assets, supervisory and regulatory considerations, and macroeconomic concerns. According to Ogungbade et al. (2020), contrary to current ratio; quick ratio, cash conversion cycle had a negative impact on the performance of firms in Nigeria. According to Bari, et al. (2021), who focused on the liquidity, activity, and gross profitability of the chosen enterprises in Bangladesh, high inventory turnover as a measure of liquidity had a substantial impact on the performance of firms. Akindele and Odusina's (2015) 2015 study in Nigeria found negative association between a firm's profitability and liquidity risk.

Long-term debts, quick ratios, and cash defensive intervals all significantly affect EPS and ROA, while cash ratio and long-term debts only have an impact on ROCE, according to (Effiong and Enya's, 2020) measures liquidity risk in terms of liquid cash, cash defensive intervals, long-term debts, and quick ratios. The working capital financing and firm performance of 437 non-financial firms in India were examined by (Altaf and Ahmad, 2019), who discovered a U-shaped relationship between the two. Additionally, it was found that companies with less financial restriction used short-term loans to fund more working capital. Also, according to Wetzel and Hofmann (2019), the existence of a profit-maximizing level of working capital, superior performance of enterprises adopting a SCF-oriented WCM approach, higher profit-maximizing levels of working capital for focal companies dealing with financially constrained supply chain partners, a positive performance impact of efficient inventory management, and differentiated payment strategies toward up and down suppliers are the main factors influencing performance.

Similarly, Rudhani and Balaj (2019) discovered a substantial and positive correlation between liquidity risk and bank performance, and they suggested that performance may be enhanced by preparing for liquidity shocks. Khan et al. (2020) investigation of the performance of companies with liquidity risk found that while deposit ratio, cash ratio, and liquidity risk have minimal impact on bank earnings, net profit or loss and liquidity gap had significant effects. Additionally, Pervan, et al. (2017) examined 195 Croatian firms over a 10-year period and discovered that the enterprises' size, liquidity, solvency, and age all significantly affect their profitability. In addition, Adekola, et al. (2017) explored the link between

profitability and working capital measured accounts receivable period, accounts payable period, inventory turnover in days, receivable turnover in days, cash conversion cycle and current ratio of Nigerian non-financial service firms and found non directional link. Another Nigerian study by Akindele and Odusina (2015) established adverse relationships among profitability and liquidity risk of a firm. The survey of Saudi firms, found current ratio as most important measure of liquidity, while working capital management and profitability seems to have significant negative on profitability (Almazari, 2014).

In the study of 720 Russian companies' working capital and profitability, (Garanina and Belova, 2015) discovered an inverse relationship between cash conversion cycles and return on net operating asset (RNOA). Li, et al. (2020) also used 15 Ghanaian firms and discovered that profitability was significantly negatively impacted by liquidity. When Moreso, Sultana, et al. (2019) looked at non-financial enterprises in Pakistan, they found an adverse association between performance and liquidity management. Alnuaimi and Nobanee (2020) have noted that successful working capital management boosts a company's revenue, shareholder dividend rate, and goodwill. Deloof (2003) observed that by lowering days of accounts receivables and inventories, corporate profitability can be increased. He investigated 1,009 large Belgian enterprises between 1992 and 1996. Additionally, Konak and Guner (2016) discovered that the cash conversion cycle and short term loan turnover days have a negative impact on net margin. In other words, profitability can be raised by efficient working capital management. Similar to this, Singh et al. (2017) found a negative correlation between the cash conversion cycle and firm profitability and proposed that aggressive working capital management will increase profitability. Almeida, et al. (2004) discovered that firm value and performance are influenced by liquidity management through access to finance.

The cash conversion cycle of non-state-owned businesses has a large negative influence on profitability, but not significantly for state owned businesses, (Ren, et al., 2019) in analysis of Chinese companies. It has been proven that a company's ownership structure affects how well its working capital is managed. The inverse relationship between share price and financial constraints might be weakened by liquidity (Dhole et al., 2019) which indicated that effective working capital management has correlations with financial constraints of Australian enterprises. This indicates that companies with effective working capital management have better market values. The impact of various working capital management components on firm performance was varied, according to Assey et al. (2020). They claimed that bettering the firms' financial performance involved raising the

inventory days and paying period while lowering the receivable periods. According to (Dioha, et al., 2018), debt, growth, and firm size had a substantial impact on profitability but firm age and liquidity did not. In a survey of Malayan businesses, Kokodey et al. (2020) discovered that investing in working capital lowers firm value. According to Boisjoly et al. (2020), elements like working capital management techniques help a corporation both internally (via performance) and externally (through capital gains). Additionally, working capital management differs between sectors and firms.

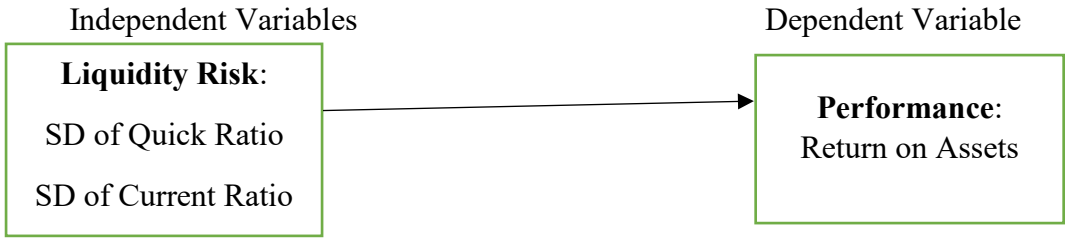
Further, Islam et al. (2018) discovered a mixed link between working capital or liquidity components and profitability. Particularly, it was shown that the current ratio and recievables had a considerable positive and negative impact on profitability. Amir Sharif (2018) also found mixed links between liquidity and performance of firms. A positive correlation between fixed asset turnover, cash conversion cycle, day's sales outstanding, inventory turnover period, sponsor shareholding, total assets, and performance was found by (Khan, et al., 2020). Also, 82 pharmaceutical companies in India were surveyed by Yameen et al. (2019), who found that the current liquidity ratio and quick ratio have a favourable and significant impact on the performance. Another study conducted in India demonstrates that a manufacturing company's liquidity, profitability, and solvency were good (Maheswari, 2015). Further, Marozva (2015) analyzed South African banks and discovered significant negative nexus between the liquidity and performance. Even though net interest margin was used as a proxy of profitability which is a weak measure.

Similarly, Obi et al. (2017) conducted an analysis of the relationship between liquidity and the performance of DMBs in Nigeria and discovered that both short- and long-term profitability are not significantly correlated with liquidity methods. According to Patjoshi (2016), profitability (operating profit margin, net profit margin, return on total asset, and return on investment) and liquidity (measured by the current ratio, liquid ratio, and inventory turnover ratio) all have a substantial impact on performance. A significant positive association between liquidity and profitability was also discovered by Njure (2014) among Kenya's listed nonfinancial companies. Also, some proxies of liquidity established mixed relationships. In light of the above, most of the existing literature established positive relationships, very few found negative and mixed links. Additionally, the researcher has determined that it is necessary to investigate the impact of liquidity risk on the financial performance of listed non-financial firms in Nigeria due to the

inconsistent findings of earlier studies. In line with the above arguments and previous empirical findings, this study has establish the following hypotheses:

> H1: Liquidity risk (SD of Quick Ratio) has no significant effect on performance of non-financial firms in Nigeria.
> H2: liquidity risk (SD of Current Ratio) has no significant effect on performance of non-financial firms in Nigeria.

Optimality theory was used to explain the research model. The theory believed that due to scarce resources, firms cannot choose financing method on the basis of optimal capital, while income from leverage becomes difficult to obtain. The financial mix of firms and financial policy are irrelevant and have no bearing on their investment decisions, (Modigliani & Miller, 1950) theorem, which states that external financing is a perfect substitute for internal financing. It demonstrates how businesses aim for the best degree of liquidity to balance the benefit and expense of holding onto cash. However, this assumes the presence of ideal capital markets, which are not relevant in practice. In essence, organizations encounter challenges when selecting to borrow (debt or equity). The figure 2.1 below shows the diagrammatic illustration of the research:



3. Methodology

This study adopts a quantitative research design because it examines the effect of liquidity risk on the performance of non-financial firms in Nigeria. According to Zikmund, et al. (2013) the methods and processes for gathering and interpreting information are indicated by the research design, which has been considered as a blueprint or road map. The population comprises all the non-financial firms currently operating and are listed on the Nigerian Stock Exchange (NSE). Population refers to the entire set of individuals, items, events, or phenomena that a researcher is interested in examining (Sekaran & Bourgie, 2010). According to the NSE report (2021) there are 87 firms listed on the NSE. Thus, the sample size is a census survey which constitute all the eighty (87) non-financial firms listed on

the Nigerian Stock Exchange as at December, 2021. Zikmund, et al. (2013) defined a sample as a subset or a small portion of a larger population. Moreover, effective sampling techniques can increase the overall accuracy of the research by ensuring its validity (Saunders et al 2009). Further, purposive sampling technique was used because only those firms with the relevant data were considered for the analysis. This study used secondary technique to source data for this survey. The data were extracted from annual financial reports of the various firms under investigation. For the analysis, the study used Stata version 16 to run the descriptive statistics, correlation matrix, regression estimates comprising the pooled ordinary least square (OLS), the fixed effect, the random effect, the Hausman specification test as well as some diagnostic tests.

Model Specification

The model specify the mathematical representation of the hypothesis tested in the analysi. There are two hypothesis in this research, and the models were specified in line with the hypothesis below:

$$ROA_{it} = \alpha + \beta_1 SDQR_{it} + \beta_2 FS_{it} + \beta_3 FA_{it} + \beta_4 LEV_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 1$$

$$ROA_{it} = \alpha + \beta_1 SDCR_{it} + \beta_2 FS_{it} + \beta_3 FA_{it} + \beta_4 LEV_{it} + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 2$$

Where; ROA = return on asset (performance), SDQR = standard deviation of quick ratio (liquidity risk), SDCR = standard deviation of the current ratio (liquidity risk), while firm size (FS), firm age (FA) and leverage (LEV) represent the firms specific control variables.

Measurement of Variables

The dependent variable is performance which was measured using the return on assets (ROA), while liquidity risk proxies were the independent variables measured using standard deviation of current ratio and quick ratio. In addition, the model also used three (3) firm specific control variables such as: Firm Size (Log of Total Assets), Leverage (Total Debts to Total Assets Ratio), and Firms Age (Number of year the firm has been in operation).

4. Results and Discussions

Descriptive Analysis

The descriptive statistics shows the features of the data in terms of the mean, median standard deviation, minimum and maximum values for each of the variables under investigation. The dependent variable is measured by return on assets (ROA),

the independent variable which is liquidity risk was surrogated by two proxies such as: standard deviation of current ratio (SDCR), and quick ratio (SDQR). Also, the control variables proxies include: firm size (FS), leverage (LEV), and firms age (AGE). In addition, it shows the variables with an outlier or missing values issues. In relation to Table 4.1 below, the descriptive shows two (2) out of the three financial constraint proxies were found to have outlier problem given their high standard deviation and wide gap between the mean, minimum and maximum values, and such were corrected by winsorizing the affected variables. These is depicted in Table 4.1 below:

Table 4.1 Descriptive Statistics

Variables	Mean	Median	Std. Dev.	min	max
Performance (roa)	0.007	0.022	0.169	-1.161	1.763
Liquidity risk (sdqr)	0.323	0.253	0.221	0.080	0.771
Liquidity risk (sdcr)	0.395	0.322	0.267	0.092	0.930
Firm Size (fs)	4.177	4.038	0.825	2.330	6.379
Leverage (lev)	0.679	0.623	0.527	-1.029	4.908
Firm Age (age)	40.236	38.00	20.504	3.000	98.00

Source: STATA Output (2023)

Table 4.1 above shows the mean, median, standard deviation, minimum and maximum values of all the study variables. It shows that return on assets (ROA) has an average of (0.007) with the median being (0.022), standard deviation (0.169), minimum (-1.16), and maximum being (1.763). The low value of the standard deviation (0.167) validate the accuracy of the mean value, simply implying that firms in the non-financial sector earned average of (0.7%) return on their assets, with the highest earning being approximately (176%) and lowest having a loss of (-116%) on their assets. Also, liquidity risk proxy (sdqr) shows an average of (0.323), median (0.253), standard deviation of (.221), minimum (0.08) and maximum of (0.771). These indicate that firms in the non-financial sectors have average quick ratio of (32%), with highest being (77%), and lowest (8%). Similarly, the second measure of liquidity risk surrogated by (sdcr) depicts an average of (0.395), median (0.322), Standard deviation (0.267), minimum (0.092) and maximum value of (0.93). This indicate that average firms in the non-financial sector have current ratio of (39.5%). These suggests that average firms in the non-financial sector have liquidity risk problem given the high average quick and current ratios.

Lastly, the control variable firm size (FS) shows a mean of (4.18), median of (4.03), standard deviation of (0.83), minimum value of (2.33), and maximum of (6.38).

The low value of the standard deviation (0.83) denotes accuracy of the mean score (4.18) indicating that firms in the non-financial sector have an average firm size of (4.18) measured by log of total assets. The second control variable denoted by leverage (LEV) shows a mean score of (0.68), median (0.62), standard deviation of (0.53), minimum (-1.03), and a maximum value of (4.91). The low value of the standard deviation (0.53) validate the mean, indicating that majority of firms within the non-financial sector finance large portion of their assets by use of debts given the average value (68%) leverage. The lastly, firms age denoted by (AGE) has a mean score of (40.22), median (38), standard deviation (20.5), minimum (3) and maximum of (98). These simply implies that majority of firms in the non-financial sector have an average of (40) years of operations, with (3) years being the minimum and maximum age of (98) years.

Correlation Matrix

The correlation matrix shows the interrelationships among the variables under investigation. Specifically, the matrix outlines the association between dependent variable (roa) and independent variable which is liquidity risk measured by (SDQRw) and (SDCRw) and control variables; firm size (FS), leverage (LEV), and firm age (AGE). This could be observed in Table 4.2 below:

Table 4.2: Correlation Matrix

Variables	roa	sdqrw	sdcrw	fs	lev	fa	VIF
Performance(roa)	1.000						
Liquidity risk (sdqr)	-0.019	1.000					2.48
Liquidity risk (sdcr)	-0.096	0.838	1.000				2.39
Firm size (fs)	0.121	-0.179	-0.131	1.000			1.05
Leverage (lev)	-0.434	-0.142	-0.106	-0.097	1.000		1.04
Firm age (ge)	0.051	-0.099	-0.074	0.031	0.080	1.000	1.01

Source: STATA Output (2023)

Table 4.2 above, shows that performance (ROA) has a negative relation with liquidity risk (SDQR = -0.019), and (SDCR = -0.096) indicating that liquidity risk reduces performance (ROA) by approximately (2%) and (9.6%) respectively. However, performance (ROA) and control variable firm size (FS) shows a positive relationship of (0.121), leverage (LEV) showed negative relationship of (-0.434), and firms age (AGE) revealed a positive association of (0.051). These results means that firms size (FS) control increase in performance by (12%), leverage (LEV) control decrease in performance by (43%), and firms age (AGE) control increase in performance by (5%). The second column (SDQR) in the matrix also revealed a positive relationship between liquidity risk (SDQR) and (SDCR) equals (0.838).

Similarly, liquidity risk (SDQR) showed a negative relation with all the control variables as follows; firm size (FS = -0.179), leverage (LEV = -0.142), and firm age (AGE = -0.099). These indicate that all the control varaibles control decrease liquidity risk such as; firm size (FS) by (17.9%), leverage by (14%), and firm age (AGE) by (9.9%) respectively.

Similar to this, liquidity risk (SDCR) showed a negative relation with all the control variables as follows; firm size (FS = -0.131), leverage (LEV = -0.106), and firm age (AGE = -0.074). These indicate that all the control varaibles control decrease liquidity risk such as; firm size (FS) by (13%), leverage by (11%), and firm age (AGE) by (7%) respectively. However, all the control variables were assumed to be held constant in order not to influence the relationships. Lastly, the eighth column showed that firm size (FS) has negative relation with leverage (LEV = -0.097), and positive link with firms age (AGE = 0.031) indicating that leverage reduces (9.7%) of the firm size, while firm's age improves the firm size by (3.1%). Similarly, leverage (LEV) was also found to have positive link with firm age (AGE = 0.08) indicating that firm age improve (8%) of the firm's leverage. The correlation results could also be authenticated by the variance inflation factor (VIF) shown in Table 4.2, as no VIF value was more than or equal to ten (10), indicating that no multicollinearity problem. As opined by Hair et al (2014) that if the VIF value is less than ten (VIF < 10) the model is free from multicollinearity problem.

Regression Result on Liquidity Risk and Performance

The result shows the degree of influence liquidity risk (SDQR and SDCR) have on performance (ROA), as well as the pattern of the influence. The relationship in the model was controlled by firm size (FS), leverage (LEV), and Firm age (AGE), and can be vividly observed in Table 4.3 below:

Table 4.3: Relationship Between Liquidity Risk and Performance

Performance (roa)	**Pooled OLS**	**Fixed Effect**	**Random Effect***
Liquidity risk (sdqr)	0.095	0.061	0.078
	(0.110)	(0.459)	(0.227)
Liquidity risk (sdcr)	-0.140***	-0.102	-0.130**
	(0.004)	(0.133)	(0.013)
Firm size (fs)	0.016*	-0.007	0.014
	(0.056)	(0.830)	(0.188)
Leverage (lev)	-0.139***	-0.196***	-0.153***
	(0.000)	(0.000)	(0.000)
Firm age (age)	0.001**	-0.003	0.001*
	(0.033)	(0.429)	(0.094)
Constant	0.030	0.299	0.050
	(0.478)	(0.107)	(0.334)
Poolability test	1.990***		
	(0.000)		
Hausman test		11.140	
		(0.050)	
BP LM test			19.770***
			(0.000)
Normality test			0.000***
Heteroskedasticity test			0.311
Mean VIF			1.59
Auto correlation test			0.674
R^2	0.216	0.195	0.215
Adjusted R^2	0.208	0.123	0.191
P. value	0.000	0.000	0.000
Obs	522	522	522

Source: STATA Output (2023)

Table 4.3 above shows the various diagnostic and specification tests, as well as the pooled PLS, fixed effect and the random effect regression estimate. On the diagnostic tests, the normality test was done by running the Jarque Bera (JB) test and skewness and kurtosis tests for normality. The test for Jarque Bera showed a (Chi (2) = 0), while skewness and kurtosis test also revealed (p.values = 0) indicating that the data is normally distributed. Also, the heteroskedasticity test showed (Prob > chi2 = 0.3111) indicating there is no problem of heteroskedasticity in the data. Further, multicollinearity test was also performed using the variance inflation factor (VIF) which all showed (VIF < 10, and mean VIF = 1.59) indicating that the data is free from multicollinearity problem. Also, the auto correlation test revealed a (P value = 0.674) that the model has no serial correlation problem. The

Hausman specification test shows a p-value of (0.050) indicating that the random effect result was better. The LM test also revealed a significant result (p-value = 0.000) implying that the random effect is still the best result. Hence, the justification for adopting the random effect estimate as the best regression result for this study. From the random effect result, it could be observed that (Prob > chi2 = 0.000), and (R-squared = 0.215), indicating fitness of the model and that the independent variables: Liquidity risk (SDQR and SDCR) explained about (22%) variability in the dependent variable measured by performance (ROA). The result shows that liquidity risk measured by (SDQR) revealed a (p-value = 0.227) and (Coef. = 0.078) implying that quick ratio was not significant in predicting performance. Thus, hypothesis (H1) which states that liquidity risk measured by quick ratio (SDQR) have significant no effect on performance (ROA) of non-financial firms in Nigeria, was accepted given the result of the regression (see Table 4.3) which shows that quick ratio was not significant on performance. This result indicate that standard deviation of quick ratio is a weak measure of liquidity risk, and hence does not have influence in firm performance.

However, the result also shows that liquidity risk measured by (SDCR) revealed a (p-value = 0.013) and (Coef. = -0.130) implying that current ratio has negative and significant effect in predicting performance (ROA) at (5%) degree of freedom. Hence, hypothesis (H2) which states that liquidity risk measured by current ratio (SDCR) does not have significant effect on performance (ROA) of non-financial firms in Nigeria, was rejected as shown in the result of the regression analysis revealing that current ratio have negative and significant effect on performance. This means that the lower the risk in the current ratio, the more the performance of the firms. In other words, when firms do not suffer any loss or experience less difficulty in settling their short term maturing obligations, that will have enhanced the performace of the company and vice versa. Further, the control variables: firm size (FS) shows a (p-value = 0.188) and (Coef. = 0.014) indicating that fimr size was not significant in explaining variability in performance. However, firms age (AGE) has a (p-value = 0.094) and (Coef. = 0.001), and leverage (LEV) revealed a (p-value = 0.000) and (Coef. = -0.153) implying that both firms age and leverage (LEV) have significant effect on performance (ROA). However, all the control variables were assumed to be constant and thus, not influencing the relationships.

Discussion of Findings

The results revealed that liquidity risk measured by standard deviation of quick ratio was not significant in explaining performance. This might probably be because the quick ratio excludes inventories as part of liquid assets based on the

assumption that it takes longer period to convert the inventories in to cash. However, current ratio was found to have negative and significant effect on performance of non-financial firms in Nigeria. These results support previous studies who discovered negative relation between liquidity risk and performance of firms (Khan et al., 2020; Effiong and Enya, 2020; Rudhani et al., 2016; Chen, et al., 2018). In addition, firms have to ensure efficient management of the short-term assets and liabilities so as to have adequate working capital for smooth running of the business. In other words, it means that efficient management of the firm's short-term assets and liabilities, help firms have sufficient working capital or liquidity, which leads to improvement in performance of the firms. As observed that when firms face Liquidity problems, operations and investment spending shifts in line with the availability of internal financing such as cash flow, cash, retained earnings, (Hong, et al., 2012; Cheng, et al., 2014; Jordan, et al., 2011; Fazzari et al., 1987). Therefore, efficient management of the firm's short-term resources helps firms mitigate liquidity risk problem, by ensuring that sufficient working capital is available either to finance daily operations or pay short term debts with having any difficulty.

Specifically, while the current assets of firms are the inventories, receivables, marketable securities and cash; the short term debts include the loans, overdraft, payables, and other short term maturing obligations. Also, to take care of the risk in liquidity, standard deviation of current ratio was used to determine the extent of deviation in the liquidity. This is in line with the findings of previous studies which revealed significant and positive association between liquidity factors such as; current ratio, quick ratio, working capital, fixed asset turnover, cash conversion cycle, day's sales outstanding, inventory turnover period and profitability or performance (Bari, et al., 2021; Khan, et al., 2020; Ogungbade et al., 2020; Alnuaimi and Nobanee, 2020; Assey et al., 2020; Boisjoly et al., 2020; Dhole et al., 2019; Pervan, et al., 2017; Islam et al., 2018; Yameen et al., 2019; Patjoshi, 2016; Njure, 2014). Conversely, some research discovered negative links between liquidity indicators like; working capital, cash conversion cycle, current ratio, receivables, and performance of firms (Kokodey et al., 2020; Ogungbade et al., 2020; Li, et al., 2020; Sultana, et al., 2019; Konak and Guner, 2016; Konak and Guner, 2016; Ren, et al., 2019; Obi et al., 2017; Islam et al., 2018; Singh et al., 2017; Garanina and Belova, 2015; Marozva, 2015), and a few studies discovered mixed associations between some components of liquidity and performance (Amir-Sharif, 2018; Islam et al., 2018; Adekola, et al., 2017). However, it was discovered that most of these studies who found negative association used either weak proxies to measure liquidity or performance.

5. Conclusions and Recommendations

This study concludes that liquidity risk measured by standard deviation of quick ratio was not significant in explaining performance, while current ratio has negative and significant effect on performance of non-financial firms in Nigeria. In other words, it means that efficient management of the firm's short term assets and liabilities, help firms have sufficient working capital, which leads to improvement in performance of the firms. Specifically, while firms must ensure efficiency in managing the current assets of firms such as the inventories, receivables, marketable securities and cash; it must also ensure that the short term debts such as the loans, overdraft, payables, and other short term maturing obligations are settled as and when due, thereby minimizing the tendency of incurring losses or liquidity risk. In other words, to take care of the risk in liquidity, standard deviation of current ratio was used to determine the degree at which firms encounter difficulty when meeting short term maturing obligations.

This study recommends that emphasis be given to various ways of reducing liquidity risk because it has significant negative effect on performance of non-financial firms in Nigeria. Specifically;

i. Firms should ensure efficient management of short term assets and liabilities, such as the inventories, cash and cash equivalence, receivables, payables, loans and overdraft, and any other short term facilities.
ii. Firm should ensure adequate working capital is available to finance any short term maturing obligations as and when due without facing any difficulty.
iii. These options would help the firms to have adequate liquidity, thereby saving the firm from liquidity risk problem, and enhancing their performance.

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