Stock Market Liquidity and Stock Market Performance in Nigeria

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Abstract

This study explored the implication of stock market liquidity on stock market performance in Nigeria covering from 1993-2023. The study applied ex-post facto design and used secondary data subjected ordinary least model. The descriptive statistic applied for the study shows that all the series are normally distributed. The ordinary least square model was used for the analysis. Findings reveal that there is a favourable and substantial implication of stock market liquidity value traded ratio on all share index in Nigeria. However, there is also a positive significant impact of turnover ratio on all share index in Nigeria. The r^2 suggest about 82% of the variations in stock market outcome in Nigeria can be explain by changes in stock market liquidity variables. The study concludes that market liquidity significantly affect stock performance in Nigeria. Henceforth, the scholarly investigation proposes that in order to enhance and maintain the magnitude of the stock market liquidity variable in Nigeria, thereby exerting a greater influence on the performance of the stock market sector in Nigeria, it is vital to facilitate the accessibility of a wider array of investment instruments, including derivatives, convertibles, futures, swaps, and options, within the market. This will effectively augment the rate of turnover. Consequently, this phenomenon will engender a surge in the demand for the services rendered by the stock market, thereby fostering an augmented level of market liquidity. The commission should formulate policies that encourage firms to increase their post-tax profits and dividends, as these variables have been empirically demonstrated to have robust significance in influencing the fluctuations of the company's performance and the market's value.

Keywords: Stock, Market, Liquidity, Performance, Nigeria

INTRODUCTION

The connection between market liquidity and stock market performance has been extensively discussed in recent literatures on stock market (John, 2021; Ibrahim & Segun, 2019). Market liquidity plays a significant role in the total advancement of stock market of the economy which also market liquidity has drawn investors' attention when analyzing stock market performance. Hence, this has prompted finance academic literature on market liquidity and stock market performance (John, 2021; Osaze, 2017). Liquidity has been duly acknowledged as a paramount

attribute of a proficient stock market. Liquidity is the life-wire of stock exchanges, and it is vital to investors, market regulators and firms listed on the various stock markets (Kumar and Misra, 2015).

Besides, liquid market is characterized by risk reduction and lower cost trading of assets. Therefore, market liquidity makes investment more lucrative and ensures efficient capital allocation (Levine and Zervos. 2006). Economic expansion, productivity, and progress are all significantly influenced by the stock exchange market (Ibrahim and Segun, 2019). When investors are evaluating investments across different global stock exchange markets, stock liquidity is a critical determinant. This pertains to the capability of promptly selling a stock subsequent to its acquisition without inducing a price decline or absorbing transaction expenses. Furthermore, market liquidity is defined as the ability to conduct significant transactions involving securities with minimal delays, costs, and price fluctuations (Kumar & Misra, 2015). According to Harris (2013), market liquidity can be defined as the ability to efficiently and economically exchange significant amounts of assets at a minimal expense, whenever the need arises. Liquidity encompasses a comprehensive range of market facets, including temporal, financial, and quantitative dimensions. A plethora of erudite scholars have since delved into the ramifications of the stock market's efficacy. Notable contributors to this corpus of scholarly inquiry include Roll (1984), Amihud (2022), Pastor and Stambaugh (2013), Acharya and Pedersen (2005), Spiegel (2018), and Amihud et al. (2022).

Statement of Problem

Numerous scholarly investigations have meticulously recorded copious amounts of empirical data that unequivocally demonstrate the profound impact of liquidity on various aspects of financial operations. These include equity expenses, valuations and returns, trading and investment activities, risk management, market stability, and economic expansion. (Acharya and Pedersen, 2015; Butler, Grullon and Weston, 2015; Chordia et al., 2018). Nevertheless, extensive research and scholarly discourse pertaining to diverse facets and dimensions of liquidity have been meticulously recorded and documented (Dalvi and Baghi, 2020; Zaheer and Rashid, 2019). Understanding the exact origins of market liquidity fluctuations remains incomplete. Furthermore, it is worth noting that the existing body of research pertaining to stock market liquidity within the framework of emerging markets is rather constrained, with a particular emphasis on the interplay among stock market liquidity and stock returns (Shammakhi & Mehrabi, 2016). Limited research has been conducted on the association among stock market liquidity and stock market viability (John, 2019; Egbon, 2021).

Several scholars have agreed that there is a notable correlation between stock market liquidity and growth of economy, particularly in the context of stock market sector growth in both developed and developing nations (Umoh and Wokocha, 2013; Ogar, Nkamare, and Effiong, 2014; Olanrewaju et al., 2015). These studies have collectively concluded that market liquidity has a detrimental effect on stock market growth. Numerous scholarly investigations have successfully

identified the dominant factors that govern liquidity. Among the noteworthy contributions are the works of Chordia et al. (2021) and Kale and Loon (2021). Rhee and Wang's (2009) study delves into the intricate dynamics between overseas venture capitalist and market liquidity in stock market in Indonesia. Their findings revealed a noteworthy inverse interplay between overseas ownership and liquidity. Kale and Loon's scholarly work (2021) elucidates a notable correlation between the capacity to exercise dominion over the product market and stock liquidity. This assertion is based on an analysis of data from 1984 to 2003 in the United States. The authors posit that augmented market power engenders a heightened level of cash flow stability, consequently mitigating the volatility of stock prices and enhancing overall liquidity. In light of these divergent outcomes, the present study aims to refine its scope by focusing on the ramifications of market liquidity on the stock market viability.

LITERATURE REVIEW

The concept of liquidity has garnered widespread recognition as a pivotal characteristic of a meticulously structured financial market (Harris, 2013). Considering the prevailing inclination of market participants towards liquid markets, it becomes evident that market liquidity assumes a paramount role in mitigating the expenses associated with trading (Demsetz 2018), thereby yielding a heightened investment yield. From the perspective of the stock exchange, a market that exhibits high liquidity serves as a magnet for a greater number of investors, thereby enabling issuers to procure additional capital at a reduced expense (Butler, Grullon, & Weston, 2015). As a result, this leads to an increase in the revenue generated by the stock exchange. In a similar vein, regulatory bodies express concern about the market's liquidity, recognizing its critical role in fostering an optimal market structure (Chordia et al., 2021) and maintaining market equilibrium (O'Hara, 2014).

Measures of Market Liquidity

The capital market holds paramount significance within a well-functioning financial system, serving as a pivotal conduit for fostering economic expansion. Henceforth, the attainment of substantial expansion is contingent upon the quantum of capital and sundry determinants requisite for production, predominantly contingent upon liquidity and the level of market development. The augmentation of liquidity further exerts a resolute influence on the efficacy of the governance function within the stock market. Initially, heightened market activity catalyzes the acquisition of information, thereby augmenting the informational content inherent in share prices. Furthermore, it is imperative to acknowledge that the optimal utilisation of the stock market for corporate control endeavours necessitates the presence of market liquidity (Forde, 2013). Takeovers necessitate a capital market that is easily accessible, allowing bidders to quickly access a significant amount of capital. Enhanced liquidity has the potential to diminish the expense associated with equity capital by diminishing the anticipated yield that investors demand when allocating funds towards equity investments as a means of remunerating them for the inherent risks involved, commonly referred to as the risk premium. Within the realm of finance literature, a multitude of measures have been

devised to approximate the liquidity of the stock market. The justification for utilising turnover ratio (TOR) and total value of securities traded ratio (TVR) can be attributed to two fundamental aspects: their inherent simplicity and ease of estimation, as well as their lack of reliance on extensive data or constrictive assumptions. Moreover, these determinants of liquidity are widely employed by practitioners and investment professionals and have garnered significant attention in scholarly literature and various facets of asset pricing (Apergis et al., 2015). The quantification of market liquidity can serve as a reflection of the market's role in facilitating corporate control. Henceforth, the fundamental metrics about liquidity encompass:

Total Value of Shares Traded Ratio (VTR)

Dividing the total value of shares traded on the exchange by the gross domestic product yields the total value of shares traded (VTR). It calculates the transaction frequency in relation to the overall economic performance. TVR = total value of shares traded divided by gross domestic product; TOR = TVST divided by GDP.

Turnover Ratio (TOR)

This metric, known as the turnover ratio (TOR), assesses the stock market's capacity to facilitate internal stock trading. The use of a high turnover ratio to denote minimal transaction costs in the stock market is commonplace. In addition to market capitalization, the turnover ratio is the same. A little-capitalised but highly volatile market will have a high turnover rate. Turnover quantifies trading in relation to the size of the stock market, while the total value traded ratio captures trading in relation to the size of the economy. It also denotes an economy's awareness and liquidity of the stock market. The variable exhibits a positive, expected relationship with economic transformation and development. GDP is divided by the sum of all shares traded on the exchange. The metric quantifies the transaction frequency of the overall performance of the economy (Levine and Zervos, 2006). The total value of shares transacted divided by the market capitalization of the stock STV/SMC = TOR

While seemingly uncomplicated in theory, liquidity is an intricate and challenging concept to quantify (Amihud 2012). To account for the variety of liquidity dimensions, it is necessary to estimate distinct liquidity measures. In their study, Aitken and Comerton-Forde (2013) compiled a minimum of sixty-eight distinct measurements of liquidity. In light of this, a comprehensive analysis must encompass various liquidity metrics to capture these multifaceted aspects. This research captures the characteristics of trading activity, transaction costs, and market depth through the use of three categories of market liquidity measures:

The following pertains to them:

Market Depth Measures

The positive liquidity measure that is anticipated to encapsulate the essence of liquidity is estimated by market depth; thus, a greater value signifies superior liquidity. The components of this classification are quantity depth (QDEP) and value depth (VDEP). QDEP represents the quantity of shares that are accessible at the highest bid and ask prices. The optimal asking price is the lowest price at which purchasers can purchase without incurring an additional cost, while the optimal offer price is the maximum price at which vendors can sell without having to decrease the price. Comparing the liquidity of equities with varying prices is possible by calculating market depth as the value of shares (value depth). VDEP equals the product of the quantity of shares offered at the best ask and the ask price, as well as the sum of the quantity of shares at the best bid and the bid price (Huberman and Halka, 2021).

Transaction Cost Measures

Impact of Market Liquidity on stock market performance

There have been propositions that market liquidity influences the financial market in both positive and negative ways. Liquidity, on the contrary, incentivizes investors to engage in speculative trading. Thus, investors can trade large volumes at a low cost with minimal price impact on a liquid market. When this occurs, the efficacy that speculative trading generates surpasses the cost of trading. Moreover, within a liquid market environment, investors are inclined to engage in active trading activities and may not possess a vested interest in overseeing the governance practices of the companies. Governments levy taxes on financial transactions in response to the adverse effects of liquidity (Egbon, 2021; Summers, 2019).

Determinants of Equity Market Liquidity

Diverse empirical indicators have identified significant sources of fluctuations in liquidity at both the aggregate market and firm levels. Chordia et al. (2021) have identified key determinant factors of market liquidity at the aggregate market level. These factors encompass macroeconomic indicators, interest rates, market returns and volatility, seasonality, and more. According to prior research, the liquidity of individual stocks tends to fluctuate in tandem with the volatility of market-wide liquidity at the firm level. There exists a positive correlation between commonality and systemic risk. At the level of individual stocks, foreign ownership (Rhee & Wang 2019), variations in tick size (Aitken and Comerton-Forde 2015), and market dominance in the product market (Kale and Loon 2011) are all plausible determinant factors. The subsequent discourse delineates the two distinct research strands that are readily discernible within the literature. It then discusses the empirical findings regarding the sources of commonality after providing an analysis of the potential origins of liquidity fluctuations at the market level and an examination of commonality in the liquidity of individual stocks.

Theoretical Review

The arbitrage pricing theory forms the basis of the study's theoretical framework. Brennan (1971) conducted the initial empirical investigation of APT and came to the conclusion that return must be represented by two risk factors, in contrast to CAPM's single factor. Nevertheless, Gehr (1975) published the initial work on APT, wherein he implemented a factor analysis approach that was otherwise quite similar. Following the empirical investigation into APT that Ross and Roll (1980) initiated, further research came to a halt. The APT, which is founded upon the insights and assumptions formulated in ICAPM3 and Efficient Market Hypothesis (EMH4), is a linear model comprised of numerous betas, in contrast to CAPM, which utilises a single beta (Chen et al. 1986). Prior studies, according to Ross (1976), are primarily hypothesis tests regarding the mean-variance efficiency of stock indices; therefore, Asset pricing model testing would only be reliable if it were possible to compute the true market portfolio, which is unattainable. Nevertheless, certain investigations, including those of Shanken (1987), offer less stringent criteria for evaluating CAPM. In contrast to mean variance portfolios, which allow for the diversification of firm-specific risks, the APT posits that the economy as a whole is susceptible to systematic risks that affect all available equities to an equivalent extent. According to the APT, risky asset prices are governed by non-arbitrage law. The APT posits that a collection of state variables, such as GDP, inflation, interest rate, and so forth, exert an influence on stock and equity returns. Bodie (2009) established that the risk premium of risk factors influences the risk premium of individual assets. As described in the Methodology section, the empirical evaluation of APT is conducted using two distinct approaches (factor analytic approach and pre-specified macro-factor approach) developed by Roll and Ross (1980) and Chen (1986), respectively. The quantity of risk factors in the CRR's APT framework is not a mandatory requirement.

Empirical Review

Arabsalehi (2022) examined the impact of liquidity in the stock market on the financial results of ninety-seven carefully chosen companies that were listed on the Tehran Stock Exchange between 2003 and 2012. They found that stock liquidity considerably and favourably affected two measures of company performance: EVA and Tobin's Q. However, there was no evidence that liquidity had a significant effect on ROA. Dalvi and Baghi (2014) examined the correlation between the liquidity and performance of Tehran Stock Exchange-listed shares. A combination of methods was employed to analyse data from 154 firms that were listed on the Tehran Stock Exchange from 1383 to 1388. The aim of the research was to ascertain the correlation between business performance and liquidity. There was a significant correlation between the liquidity and performance scales, according to the findings.

For the period from 1979 to 2008, Olowo et al. (2021) conducted a critical analysis of the capital market's impact on the Nigerian economy. All variables tracked by the outcomes suggested that the stock market did contribute to economic expansion. The main findings showed that there was a negative relationship involving turnover ratio and GDP as well as a negative link among market capitalization and GDP. Conversely, the all-share index exhibited a positive correlation with gross domestic product. Adenuga (2020) investigated the hypothesis that the development of the stock

market stimulates economic growth in Nigeria and attempted to establish or refute its validity by applying the vector error correction model (VECM) to quarterly data for Nigeria from 1990 to 2009 and frequently employed stock market development indicators. According to the findings, the market capitalization ratio model provides the most accurate representation of the total value of shares traded, while the turnover ratio model exhibited a slower performance.

In their study, Yusuf (2019) examined the potential effects of financial liberalisation on the efficacy and liquidity of the stock market, which are key drivers of economic expansion. Analysing the data for a period of twenty years (1986-2005) using paired tests. Financial liberalisation has a substantial positive effect on the liquidity and efficacy of the Nigerian stock market, according to the study. Regarding monetary policy, Guo (2008) examined the efficient market hypothesis (EMH) about the Chinese stock market.

METHODOLOGY

The study employs an econometric technique as its methods of analysis. The process involves measuring the stochastic (non-exact) relationship between the regress and the regressor variables of interest. This entails estimating the parameters to measure test and validate economic relationships based on the prediction of neoclassical model. The researcher employed Ordinary Least Square (OLS). Financial studies frequently employ OLS regression due to its straightforward implementation and accurate forecasting. Utilising the coefficient of determination (R^2), the model's quality of fit was evaluated. The proportion of the total variance in y that the dependent variable explains.

Model Specification

In addition to any information pertaining to the phenomenon under investigation, economic theory (specifically, stock market theory) will inform the specification of an econometric model. To explore the interplay between stock market viability and stock market liquidity, multiple regression models will be implemented. Insurance value traded ratio, turnover ratio are used as the independent variable s whereas all share index in Nigeria is the dependent variable. The empirical model is expressed functionally as follows; ASI = F(VTR, TR)
                (1)

Therefore, the operator (1) expressly converts equation (1) to an econometric and operational form.

$$ASI = \beta_0 + \beta_1 VTR + \beta_2 TR + \mu \qquad (2)$$

Clearly, since these variables in equation (2) do not have same unit of measurement, the usual practice would be to take the logarithm of each variable (with the exception of degree of openness which is in ratio form) and estimate linearly.

Thus the specification becomes;

$$LogASI = \beta_0 + \beta_1 VTR + \beta_2 TR + \mu \quad\quad\quad (3)$$

Whereas; ASI =All Share Index, VTR =Value Traded Ratio,TR=Turnover Ratio, LOG=logarithm formβ_0, β_1, β_2 = constant parameters, μ = the error term

Table 1   Summary of Descriptive

Panel A: Descriptive Statistic

	LogASI	VTR	TR
Mean	6.373822	6.439441	7.951473
Median	6.013291	6.223940	7.896317
Maximum	8.852536	8.852536	11.10302
Minimum	4.846547	4.846547	5.098646
Std. Dev.	1.403725	1.446372	2.054694
Skewness	0.744275	0.679620	0.076234
Kurtosis	2.234121	2.153118	1.770073
Jarque-Bera	1.167646	1.068642	0.639986
Probability	0.557762	0.586067	0.726154
Sum	63.73822	64.39441	79.51473
Sum Sq. Dev.	17.73400	18.82792	37.99589
Observations	31	31	31

Source: E-view output, version10.1

Table 1 provides a descriptive summary estimate. The descriptive statistics provide the mean, standard deviation, and total number of observations for each variable. Additionally, it showed the lowest and greatest values that these variables are possible to generate. It turned out to be 6.373822 billion on average for the LogASI reported. Also value traded ratio and turnover ratio estimated an average of 6.439441 and 7.951473 respectively. The fact that the standard deviation, kurtosis, and skewness numbers are near to or equal to zero also tells us something important about how symmetrical the distributions are. Furthermore, at the 5% level of significance, the Jarque-Bera probability value shows that the series are regularly distributed.

Unit Root Test

The examination of the variables' stationarity was conducted employing the ADF Unit Root Test. The findings presented in table 2 indicate that all the variables exhibit integration at the first difference, denoted as 1(1), with statistical significance at either the 5% or 1% level.

Table 2: Unit Root Tests Analysis

Variables	ADF test Statistics	Mackinnon critical @ 5%	No of the time difference	Remark
ASI	-1.1475433	-3.243253	I(1)	Stationary
TR	-2.4756311	-4.635422	I(1)	Stationary
VTR	4.6375622	2.43512	I(1)	Stationary

Test for Co-Integration

Upon discovering that all the variables exhibit stationarity at the first difference, the subsequent course of action entails conducting the Johansen co-integration procedure to determine whether All Share Index (ASI), Trade ratio (TR), and Value traded ratio (VTR) are co-integrated in a similar order. The findings derived from the examination are meticulously displayed within the confines of Table .3.

Table 3: Multivariate Johansen's Co-Integration Test Result.

Null hypotheses	Alternative hypotheses	Eigen value	Likelihood ratio	Critical vales 5%	Critical value 1%	Hypothesized No. of CE(s)
r=0	r=1	0.735467	56.33235	58.36	41.23	None **
rd≤1	r=2	0.633543	43.43625	44.29	38.53	At most 1
rd≤2	r=3	0.524365	36.45362	36.43	23.13	At most 2

Table 4 Ordinary Least Square Model

Dependent Variable: LOGASI

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.073898	0.256452	0.288155	0.7816
D(VTR)	0.111883	0.131370	8.463734	0.0001

D(TR)	-0.108154	0.092476	-1.169529	0.0005
R-squared	0.822176	Mean dependent var		6.373822
Adjusted R-squared	0.762777	S.D. dependent var		1.403725
S.E. of regression	0.161419	Akaike info criterion		-0.566299
Sum squared resid	5.831495	Schwarz criterion		-0.475523
F-statistic	336.8033	Hannan-Quinn criter.		-0.665880
Prob(F-statistic)	0.000000	Durbin-Watson stat		2.181814

Source: Author Computation from E-view output version10.1

Test of Hypotheses

Hypothesis One: Value traded ratio does not have a significant impact on all share index in Nigeria.

Consequently, 0.000<5% threshold of significance is the probability value from Table 4. This implies the rejection of the null hypothesis. As a result, the research comes to the conclusion that the value traded ratio significantly affects every share index in Nigeria.

Hypothesis Two: There is no significant impact of turnover ratio on all share index in Nigeria.

Thus, based on Table.4, the probability value of 0.280 is more than the significance threshold of 5%. Inferred is the acceptance of the null hypothesis. Thus, the research comes to the conclusion that turnover ratio significantly affects Nigeria's whole share index.

CONCLUTION AND RECOMMENDATIONS

Henceforth, the study deduces that the liquidity of the stock market exerts a noteworthy and affirmative influence on the performance of the stock market within the Nigerian context. Therefore, the present study delineates the subsequent recommendations. It is imperative for the pertinent governing body to enhance and maintain the stock market liquidity variable (VTR) in Nigeria in order to exert a greater influence on the performance of the stock market sector in Nigeria. This necessitates the provision of a wider array of investment instruments, including derivatives, convertibles, futures, swaps, and options, within the market, thereby augmenting the turnover rate. Consequently, this phenomenon will engender a surge in the demand for the services rendered by the stock market, thereby fostering an augmented level of market liquidity.

It is crucial for investors and regulatory bodies, such as the Nigerian stock exchange, to strive towards establishing a favourable trading environment and regulatory framework. This will help guide the operations of the NSE and raise awareness about the significance of the security market in Nigeria. It is imperative that the governing body fortify the mechanism of information

dissemination and cultivate heightened awareness among market participants and investors. It would be advantageous for certain market participants, who have traditionally been passive observers, to actively participate in the process of price formation within the market. This would facilitate the assimilation of information and potentially influence market dynamics.

The Nigerian Securities and Exchange Commission ought to formulate policies that foster the augmentation of firms' post-tax profits and dividends, as these variables have been empirically demonstrated to possess robust significance in influencing the fluctuations of a company's performance and the market's valuation.

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APPENDIX1:

**Value Traded Ratio, Turnover Ratio and All Share Index
From 1993-2023.**

YEARS	Value Traded Ratio (%)	Turnover Ratio (%)	Al Share Index (Point)
1993	0.19	1.07	5,732.20
1994	0.616	2.47	6,992.10
1995	0.319	1.07	5,092.20
1996	0.616	2.47	6,992.10
1997	0.916	3.97	6,440.50
1998	0.116	5.91	5,672.70
1999	0.190	3.97	5,266.40
2000	1.116	10.59	8,111.00
2001	0.229	8.78	10,963.10

2002	0.342	10.59	12,137.70
2003	0.765	20.45	20,128.94
2004	1.235	34.79	23,844.50
2005	1.109	13.94	24,085.80
2006	1.524	10.96	33,189.30
2007	6.298	20.45	57,990.20
2008	4.96	34.79	31,450.78
2009	1.539	13.94	20,827.17
2010	1.412	10.10	24,770.52
2011	0.956	9.92	20,730.63
2012	0.899	8.18	28,078.81
2013	1.224	9.11	41,329.19
2014	0.939	6.82	34,657.15
2015	0.839	8.17	28,642.25
2016	0.373	5.36	26,874.62
2017	0.587	5.87	38,243.19
2018	0.651	8.20	31,430.50
2019	0.606	9.18	26,842.07
2020	0.650	4.39	40,270.72
2021	1.895	9.54	42,716.44
2022	2.019	0.66	4.85.4568

| 2022 | 2.329 | 0.79 | 4.93.4532 |

Source: Central Bank Statistical Bulletin, 2023.