

## Trading Volume and Market Turnover in the Nigerian Capital Market: Implications to Stock Market Returns

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### **Abstract**

*The study investigated the effect of trade volume and market turnover on daily stock returns of the Nigerian Stock Market (NSE) using secondary data obtained from daily trading at the stock exchange. Because of the risk of substantial error involved in using aggregate data the researchers deemed it appropriate to use daily data for a robust result. The methodology used was regression analysis using the Stata statistical package we tested for the effect of volume on stock returns in the first hypothesis. In the second hypothesis we also tested the effect of turnover on stock returns also using the stata computer statistics to capture trading relative to the market size for the period in question (15 years). The findings of the study indicated that the model used for both tests judging by the F-Statistics was well fitted. The R2 and the adjusted R2 measuring the goodness of fit of the model indicates that variations observed in the dependent variable for the two hypotheses were explained by the independent variables. The Durbin Watson statistics indicate that there is a slight trace of autocorrelation in hypothesis one but no trace of such in hypothesis two. The result of hypothesis one shows that value of transaction ratio has a negative and significant impact on the SR (VTr coefficient = -8.51  $p = 0.00 < 0.05$ ,  $t$ -value = 30). The result shows that Tor has a positive and significant impact on the Log ASI of Nigerian (TOR coefficient = 0.36,  $p = 0.00 < 0.05$ ,  $t$ -value = 146.44). The study concluded by stating that Volume of trade had a negative but significant effect on stock returns and attributes it the possibility of investor misspecification about future earnings or illiquidity of low volume stocks. The turnover at the market had a positive and significant effect on the stock market returns attributable to a possible anticipation of higher market illiquidity by investors and consistent with the positive cross-sectional relationship between stock return and illiquidity. The study's recommendations to policy include reviewing policies on capital gains tax to encourage investors especially in an ailing market. A second recommendation is that investors should make trading volume based strategies to make profits and theoretically this provides evidence of weak form inefficiency of the Nigerian Stock Exchange. The research recommends for further study, the investigation into new or existing theories on the "size effect" of market returns on volume and price. Currently theoretical explanations in literature for size effect do not sufficiently explain the gaps in previous research even though there is a general agreement about the importance of size. It is important that more research be made in studying theoretical and empirical applications of models measuring weighty risk management strategies such as*

*portfolio rebalancing. As a risk control strategy knowledge of portfolio rebalancing can be seen where an informed investor acknowledges the usefulness of compounding effect of returns on his portfolio by calculating based on compound average and not simple average.*

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**Keywords:** *Trading volume, Market Turnover, Nigerian Capital Market and Stock Market Returns*

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## **1.0 Introduction**

Basically, the capital market is primarily created to provide avenues for effective mobilization of idle funds from the surplus economic units and channel them to the deficit economic units for long-term investment purpose. It, therefore, serves as a linkage or mechanism between the deficit sector and the surplus sector in any economy. The suppliers of funds are basically individuals and corporate bodies as government rarely supply funds to the market. The users of funds, by contrast, consist mainly of corporate bodies and government. The vital roles played by the capital market in the achievement of economic growth thereby enables governments, industries and corporate bodies to raise long-term capital for the purpose of financing new projects and for expanding and modernizing industrial concerns. A unique benefit of the capital market to corporate entities is the provision of long-term, non-debt financial capital. To determine the impact of stock market on the Nigeria economy, more funds are needed to meet the rapid development and expansion of the economy. The stock market serves as a veritable tool in the mobilization and allocation of savings among competing ends which are critical and necessary for the growth and efficiency of the economy. Therefore, the determination of the overall growth of an economy depends on how efficiently the stock market performs its allocation functions of capital.

As more and more empirical evidence are obtained from different stock markets all over the world, the puzzle far from being solved seems to have increased. Using a long time series data from 1962–1993, Wang *et al* (1997) found out that the US capital market enhances liquidity. Also studying liquidity in the US market, Peiro (1994) observed that there were positive stock market returns. Of late, studies have incorporated volatility of market returns in the framework of analysis (Ho and Cheung, 1994; Choudhry, 2000). Seasonalities in security market returns have been extensively documented. Among the different seasonal effects observed in stock markets, an interesting one is the seasonality across the days of a week. Its discovery goes back to Fields (1931). Fields observed that the US stock market consistently experienced significant negative and positive liquidity on Mondays and Fridays respectively. The observation once again started receiving increasing attention during the 1980's (French, 1980; Gibbons and Hess, 1981; Lakonishok and Levi, 1982), especially when it was discovered that capital markets of many other countries also experience similar seasonality (WesterField, 1985; Peiro, 1994; Agarwal and Tandon, 1994).

Information flow cause fluctuations in stock market turnover and trading volume. As volume of trade increases the gap in stock returns reduces. This is why investors take trade volume in trading places very seriously, and these volumes in turn are influenced by the actions of investors with different levels of information. Price movements are controlled by trading volume which in turn is influenced by market information. The literature on trade volume in the Nigerian Stock

Exchange using daily data over a long period of time is not as common as studies conducted in the developed markets. The intention of the researchers is to investigate how market stock returns is influenced by trade volume and market turnover in the Nigerian capital market from 2001 to 2015. As information is upgraded in the market the investor's expectation is measured in the variance and mean of the return distribution.

### **1.1 Statement of problem**

In theory the problem under investigation is that previous studies have questionable methodologies when measuring the impact of certain factors on stock market returns. Amihud et al (2005) in studying liquidity and asset pricing believes that the increasing importance of standard deviation inclusive models in measuring volatility and liquidity of stock market returns is not unconnected to the general understanding that there is a need to model risk measures that would capture the effect of liquidity and volatility on returns.

### **1.2 Objectives of study**

1. To examine the impact of volume of transactions ratio on daily stock market returns of the Nigerian Stock Market.
2. To examine the impact of turnover ratio on daily stock market returns of the Nigerian Stock Market.

### **1.3 Research questions**

1. To what extent does volume of transactions ratio have an impact on daily stock market returns of the Nigerian Stock Market?
2. To what extent does turnover ratio have an impact on daily stock market returns of the Nigerian Stock Market?

### **1.4 Research hypotheses**

**Ho<sub>1</sub>:** Volume of transactions ratio does not have any significant impact on daily stock market returns of the Nigerian Stock Market.

**Ho<sub>2</sub>:** Turnover ratio does not have any significant impact on daily stock market returns of the Nigerian Stock Market.

## **2.0 Literature review**

Clark, Epps and Epps (1976) pioneered research investigating trading volume and market returns and the effects on stock. Tauchen and Pitts (1983) and Bollerslev and Jubinski (1999) also conducted similar studies on volume and market returns. Souminen (2001) mentions positive correlational effect between price variability and trading volume as premised on private information. He also mentions that predicting volatility depends on the information content on trading volume as well as price changes. Trading activity and prices are significantly affected by non-informational trade based on activities such as insider trading and short selling. Lee and Rui (2001) have explained the relation between trading volume and serial correlation of stock returns by including another variable named as shocks i.e. informational and noninformational components. They suggest that trading volume is influenced by noninformational trades and stock returns by informational trades. Lamoureux and Lastrapes (1990) have adopted GARCH model to explain the conditional volatility of returns is influenced by trading volume. Chen et al.

(2001) find persistence of volatility is not eliminated when trading volume is used in the GARCH model. Bollerslev and Jubinski (1999) suggest that by imposing long memory component on differing short-lived news, the joint volume-volatility relationship can be exercised. Based on the available set of information about a company, its stock prices reflect investors' expectations on the future performance for the company.

Charavarty, Gulen and Mayhew (2004) investigate variables the results of which highlighted the relevance of price discovery for investors in financial derivatives like options and futures. They concluded that when bid-ask spreads are narrow and trading volume is high then price discovery is higher. Sun (2003) from their findings concluded that pre-earnings trading is likely non-informational and the availability of asymmetrical information is small after their findings reveal negative correlation of returns before earnings announcements. Barclay and Hendershott (2003) suggests that price discovery first starts from the high volume stocks and then spreads to low volume stocks and the trading volume after hours is low because of high risks level and high trading costs. Gallant, Rossi and Tauchen (1992) investigated the dynamic but complex relationship between the price-volume-volatility of the stock market. Their findings indicate that the magnitude of price change and daily trading volume is positively and nonlinearly correlated to each other and that volume movements are caused by price changes. They also found strong non-linear casual relationship between futures price variability and the trading volume indicating the impact of current trading volume in the prediction of future prices.

Using a three equation simultaneous model Wang and Yau (2000) found that price volatility can be explained by current volume and lagged volume. Size and stock liquidity are closely correlated; this makes it difficult to disentangle these two effects. Studying the Nigerian Stock Exchange offers a unique opportunity to address this issue due to the widespread coexistence of tradable and non-tradable securities in listed companies. In other markets where similar research was carried out the size of non-tradable securities has a significantly negative relation with expected returns, after controlling for common liquidity measures. However, its impact on stock returns is substantially weaker than that of the size of tradable shares.

Dimitri and Jiang (2012) maintained that liquidity is important, but not the only source of the size effect in stock returns and that Asian markets stock returns studied exhibit cross sectional patterns strikingly similar to those documented for developed markets. The mainstream asset pricing theory contends that the expected return of a security is mainly determined by its systematic risks as seen in earlier empirical tests (Fama and MacBeth (1973), Roll and Ross (1980)), more recent research has documented some intriguing regularities that cannot be easily reconciled with this paradigm. Various theories have been put forth to explain the size effect. One of the most frequently mentioned explanations holds that small stocks contain some systematic risks that are not adequately measured by empirical researchers.

Because the market uses a high discount rate to capitalize its future cash flows, or because they have lost market values due to poor past performance small firms have cash flow problems and less likely to survive adverse economic conditions. Since these risks cannot be easily captured by empirical models, small stocks tend to exhibit a higher risk-adjusted return. Larger stocks are generally more liquid, and investors are willing to compromise returns for higher liquidity.

Therefore equilibrium returns of larger stocks are lower. A significantly positive relation has been found between expected stock returns and various measures of liquidity such as bid-ask spread, price impact of trading, turnover rate or trading volume. These results suggest that the size effect may simply be a liquidity effect. A difficulty in testing the liquidity-based explanation against the risk-based explanation lies in the fact that stock liquidity is very hard to measure, and is usually inextricably correlated with size of the firm or market.

Of interest to research is not just whether small stocks yield higher returns than large stocks but also the where the compensation for risk lies. Many academicians adopt the three-factor model for a wide variety of purposes. The apparent tension between the ongoing academic debate and the widespread use of these models warrants a critical review of the available evidence and the theoretical justifications of the size effect. The size effect is strongest for very small stocks and there is evidence suggesting that stock returns are approximately linear in size as measured by logarithm of market value. The study of size effect in markets facilitates the evaluation of corporate finance and investment decisions in those countries. Secondly, the strength of the size effect may depend on market characteristics such as the trading mechanism, type of investors, and market efficiency in general. Thirdly, the finding that the size effect exists in different markets and in different time periods would constitute a strong argument against data snooping concerns.

Using relatively long horizons may prevent problems related to non-synchronous trading and seasonal patterns in returns. Amihud Mendelson and Pedersen (2005) present a theoretical model in which expected returns are increasing in the bid-ask spread. The basic intuition is that investors require a compensation for expected trading costs. The model predicts that the investors require a compensation for expected trading costs. The model predicts that investors with longer holding periods select securities with larger spreads. Therefore, the larger the spread, the smaller the compensation required for an additional increase in the spread, as transaction costs amortized over a longer holding period. Hence, the relation between expected return and spread is concave. This theoretical prediction is borne out in an analysis of the data set of Stoll and Whaley (1983).

Fama-MacBeth regressions reveal that size is the only variable that shows up significantly. Several other authors examine the relationship between expected stock returns and various measures of liquidity. Brennan and Subrahmanyam (1996) contend that the quoted bid-ask spread is a noisy measure of liquidity, as many transactions occur inside or outside the spread and the price impact of a trade is not taken into account properly. The authors study intraday transaction data for NYSE stocks over the period 1948-1988 and use market microstructure models to estimate fixed and variable transaction costs are positively and significantly related to returns, consistent with a significant risk premium on liquidity. Both liquidity measure and market size have a significant effect of the expected sign, however, suggesting that the liquidity variable does not capture the size effect completely. Recent studies consider the possibility that market liquidity is a priced state variable. If the returns of small stocks are more sensitive to this state variable, part of the size effect may be related to liquidity risk. Amihud (2002) runs time-series regressions of the returns on expected and unexpected market liquidity, small firms are more sensitive to market liquidity. Time-variation in the size effect may therefore be related to



time-variation in the price of liquidity risk. Portfolios of firms with high liquidity betas have substantially higher returns relative to Fama and French (1993) three-factor model.

A reversal of the size effect in certain periods does not necessarily imply that small firms do not earn higher returns on average than their beta suggests. Bonds also occasionally outperform stocks over prolonged periods of time, yet few economists would dispute the proposition that on average stocks yield higher returns than bonds as a compensation for their higher systematic risk. However, if these reversals occur often and/ or over extended time periods, this may shed doubts on the reliability of the empirical findings. The relationship between volume and volatility has been a topic of interest for academic researchers during the past few decades. Karpoff (1987) is a seminal work that set the tone for exploring this relationship. Much of the literature on the relationship between volume and volatility has been conducted in the context of futures markets. The general conclusion is that there is a positive relationship between volume and volatility.

Second, Bessembinder and Seguin (1993) decomposed trading volume into an expected component (to capture the effects of trends) and an unexpected component (to estimate the impact of both positive and negative shocks). Daigler and Wiley (1999) examined the role of trader type in the context of futures markets and Wang (2005) examined the role of trader type in the context of FII traders and DII traders in the Indonesian stock markets. Empirical research across financial markets has noted regularities in intraday behavior of volume and volatility. Typically, both the volatility of returns and volume of trading is found to be “U-shaped”, i.e., more at the beginning and at the close of trading as compared to rest of the trading hours. In some markets, the increase towards the close of trading is less pronounced resulting in so called “reverse J” shaped pattern or even “L shaped” intraday pattern. Researchers have also explored the role of information flow and of the microstructure variables as determinants of intraday volatility.

Cross-listed stocks, where the foreign listing is in a market in different time-zone, present a case where the trading continues much after it has stopped for other stocks. Since these stocks are traded overnight (in foreign market), relatively more recent price quotes are available and hence variance of price at opening should be low for these stocks, assuming that information can flow freely Amihud and Mendelson (2005) observed that pricing errors at open are lower for cross-listed stocks vis-à-vis other stocks and conclude that available sequence of transaction prices from the trading day in other markets facilitates faster price discovery for cross-listed stocks. Another phenomenon of empirical interest in the context of intraday dynamics is the effect of expiry of derivative contracts on prices, volume and volatility. Alkeback and Hagelin (2004) find high volumes but no price distortions in Swedish market. Vipul (2005), based on low-frequency data from Indian stock market, notes that the price and volatility are sometimes distorted near expiration day in the Indian market due to unwinding of cash positions by arbitrageurs in cash markets.

### **3.0 Research methodology**

This research adopts the *ex-post facto* research design. In the context of social and educational research the phrase ‘after the fact’ or ‘retrospectively’ refers to those studies which investigate possible cause-and-effect relationships by observing an existing condition or state of affairs and

searching back in time for plausible causal factors. In effect, researchers ask themselves what factors seem to be associated with certain occurrences, or conditions, or aspects of behavior. Kim and Singal (1993) has defined *ex-post facto* research more formally as that in which the independent variable or variables have already occurred and in which the researcher starts with the observation of a dependent variable or variables. While Onwumere (2005) posits that the *ex-post facto* research design establishes a causal link between them. From the forgoing, therefore, this research adopted the *ex-post facto* research design. The data source is secondary in nature and is derived from the daily statistics from trading at the secondary market from 2001 to 2015. To test for the impact of volume of transactions and turnover ratios on stock returns of the Nigerian stock market, we adopted the linear regression model in line with existing studies in this area of finance, for instance, the works of Chaudhury (1991), Berument and Kiyamaz (2001) and Rahman (2009), Arumugam (1997), Guha Deb and Mukherjee (2008), Goswami and Anshuman (2000), Lumsdaine and Ng (1999) and Woolridge (1991), etc.

### 3.1 Model specification

The hypotheses stated was the premise for specifying the study's model

**H<sub>01</sub>:** Volume of transaction ratio does not have any significant impact on stock market returns of the Nigerian Stock Market.

$$\text{Log ASI} = \alpha_0 + \alpha_1 \text{VTr} + \mu \dots \dots \dots \text{(ii)}$$

where;

- Log ASI = Log of All Share Index (a proxy for Stock Market Returns)
- VTr = Volume of transaction ratio measured by market capitalization divided by volume of transaction)
- $\alpha_0$  = Equation constant
- $\alpha_1$  = Coefficient of independent variable
- $\mu$  = Error Term

**H<sub>02</sub>:** Turnover ratio does not have any significant impact on stock market returns of the Nigerian Stock Market.

$$\text{Log ASI} = a \alpha_0 + \alpha_1 \text{TOR} + \mu \dots \dots \dots \text{(iii)}$$

where;

- Log ASI = Log of All Share Index (a proxy for Stock Market Returns)
- TOR = Turnover Ratio (measured by value of transactions divided by market capitalization)
- $\alpha_0$  = Equation constant
- $\alpha_1$  = Coefficient of independent variable
- $\mu$  = Error Term

### 3.2 Model assumption

The model assumes that the data must be commensurate with the estimated parameters given the high frequency it possesses and to minimize chances of multicollinearity. Because of the secondary data used, the regressor is assumed error free as is the case in many standard regression models.

### **3.3 Variables**

The dependent variable is the log of the All Share Index (Log ASI) consistent with the studies of Arumugam (1997) and Rahman (2009). The NSE all shares index is a composite index calculated from prices of all common stocks traded on the NSE. Specifically, the Index is a market capitalization weighted price index which compares the current market value of all listed common shares to the value on the base date. The Independent variables are the volume of transactions ratio and turnover ratio in line with the works of Guha Deb and Mukherjee (2008). The total volume of shares traded measures the organized trading of firm equity and therefore should positively reflect liquidity on an economy-wide basis. The volume transaction ratio is used in conjunction with market capitalization although a market may be large, there may be little trading. Again, the interest in this research is on the impact of volume of transactions ratio on stock market returns of the Nigerian Stock Exchange therefore this study adopted this measure in line with the works of Guha Deb and Mukherjee (2008). The formula computed by volume of transaction by market capitalization multiplied by 100. Total volume traded ratio captures trading relative to the size of the economy, turnover measures trading relative to the size of the stock market. A small liquid market will have a high turnover ratio but a small total value traded ratio. This proxy is adopted in line with the works of Chaudhury (1991), Goswami and Anshuman (2000), Lumsdaine and Ng (1999) and Woolridge (1991).

### **3.4 Model justification**

Many scholars have established significant positive relationships between economic growth and financial development. Levine and Zervos (1998) posited what they termed '*supply leading*' hypothesis. Beck (2002) and Kletzer and Pardhan (1987) had similar findings in their results suggesting that that financial development is much more effective in promoting economic growth in more industrialized economies than in agricultural economies. Fry (1995) argued that financial sector development benefitted countries in their early stage of development than their older and more developed counterparts.

### **3.5 Analysis Technique**

Regression analysis will be employed to model and analyze the variables to measure the amount of control the independent variables have on the dependent variable. Gujarati and Porter (2009) emphasizes that regression analysis estimates the conditional expectation of the dependent variable given the independent variables that is, the average value of the dependent variable when the independent variables are held fixed. Less commonly, the focus is on a quartile, or other location parameter of the conditional distribution of the dependent variable given the independent variables (Brooks 2002). To test if there is a bidirectional relationship between the model proxies granger causality would be a fundamental requirement to establish the causality of impact and direction of movement. To test for stationarity the unit root test of Augmented Dickey Fuller was adopted. The ADF use the existence of a unit root as the null hypothesis, the



more negative it is, the stronger the rejection of the hypothesis that there is a unit root of confidence.

#### 4.0 Data analysis and discussion of results

**Table 4.0.1**  
**Augumented Dickey Fuller (ADF) tests**

Variable	Test Statistic	Order of Integration
LASI	-28.53777	1(1)
VTR	-21.157950	1(0)
TOR	-3.802430	1(0)

ADF Test Statistic	-22.95090	1% Critical Value*	-3.9452
		5% Critical Value	-2.4688
		10% Critical Value	-2.2686
*MacKinnon critical values for rejection of hypothesis of a unit root.			

**Source:** Researcher's Excel Result

The presence of unit root in the time series data set was tested for. It became necessary to ensure that the parameters estimated are stationary time series data. By utilizing the Augmented Dickey – Fuller (ADF). We reject the null hypothesis that the data are non –stationary, the ADF statistics must be negative than the critical values and significant. The unit root test results are depicted in the table 4.1. Apparently, there are no presence of stationarity since the ADF Statistics is less than the critical values at 1%, 5% and 10% respectively.

**Table 4.0.2 Correlation Result**

	LOGASI	VTR	TOR
LOGASI	1.000000		
VTR	0.058799	1.000000	
TOR	0.973765	0.244599	1.000000

**Source:** Researcher's E-view Result

There was also a positive relation between All shares index and volume of transaction ratio in the Nigerian Stock (R= 0.06). As indicated, a 1% increase in All Shares index increase the Volume of transaction ratio by 6%. All Shares Index of the Nigerian Stock Market also had a positive correlation with turnover ratio of the Nigerian Stock market. As indicated from the table, a 1% increase in all shares index increases turnover ratio by 97% (R = 0.97). Also Volume of tranaction ratio the Nigerian Stock Market also had a positive correlation with turnover ratio of the Nigerian Stock market. A 1% increase in volume of shares traded increases turnover ratio traded by 24% (R = 0.24).

**Table 4.0.3**  
Pairwise Granger Causality Tests  
Date: 01/08/17 Time: 08:23  
Sample: 01/02/2001 12/31/2015

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Probability
VTr does not Granger Cause SR	3713	0.25613	0.80837
SR does Granger Cause VTr		139.187	0.00000
TOr does not Granger Cause SR	3712	0.97593	0.39531
SR does Granger Cause Tor		195.096	0.00000

From the above table it is

apparent that volume of transactions ratio does not granger cause stock returns since (p-value =  $0.81 > 0.05$ ) but the stock returns granger cause volume of transaction ratio at (p-value =  $0.00 < 0.05$ ). The turn over ratio does not granger cause stock returns (p-value =  $0.40 > 0.05$ ), but the stock returns granger cause turn over ratio as indicated (p-value =  $0.00 < 0.05$ ). There is a uni directional relationship between each of the two independent variables and the dependent variables.

#### 4.1 Test of Hypotheses

##### 4.1.1 Test of Hypothesis One

**Step One: Restatement of the Hypothesis in Null and Alternate forms:**

**Ho<sub>2</sub>:** Volume of transactions ratio do not have significant impact on stock returns at the Nigerian Stock Market.

**Ha<sub>2</sub>:** Volume of transactions ratio has significant on stock returns at the Nigerian Stock Market.

#### Step Two: Presentation and Analysis of Result

Table 4.1.1 Regression Result for Hypothesis  
. regress LogASI Vtr LogVol

Source	SS	df	MS	Number of obs =	3713
Model	230.872782	2	115.436391	F( 2, 3710) =	6682.86
Residual	64.0846746	3710	.017273497	Prob > F =	0.0000
Total	294.957457	3712	.079460522	R-squared =	0.7827
				Adj R-squared =	0.7826
				Root MSE =	.13143

LogASI	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
Vtr	-8.513906	.2837919	-30.00	0.000	-9.070309 -7.957502
LogVol	.3853694	.0033382	115.44	0.000	.3788245 .3919143
_cons	1.253648	.0263776	47.53	0.000	1.201932 1.305364

Durbin-Watson statistic (original) 2.371970

Durbin-Watson statistic (transformed) 2.217869

### Source: Researcher's Stata Result

$$\text{Log ASI} = 1.25 - 8.51\text{VTr} + \mu$$

Table 4.1.1 indicates the result of the regression analysis of the effect of volume of transactions ratio on stock returns measured by logging the All Shares Index (ASI) on of the Nigerian stock market from 2<sup>nd</sup> January 2001 to 31<sup>st</sup> December 2015. The model for our study is well fitted (F-statistic= 6682.86). The goodness of fit of the model measured by the coefficient of determination (R-square), indicates that the independent variables explained 78% of the variations observed in the dependent variable. There were indications that there are other variables other than our explanatory variables that might also impact on the dependent variable hence the need to moderate the R –squared with the Adjusted R-squared to 78. The result shows that volume of transaction ratio has a negative and significant impact on the SR (VTr coefficient = -8.51 p = 0.00 < 0.05, t-value = 30). There are indications of slight trace of spatial and serial autocorrelation with a Durbin Watson statistic of 2.37. Durbin Watson statistics was taken into account using Newey West/Cochrane-Orcutt procedure and transformed to 2.21. This was done to correct the OLS standard errors and the R<sup>2</sup> as well. As a result of these treatments, the coefficients of the independent variables were observed to perform better in explaining the model.

### Decision:

Based on the result above, we accept the null hypothesis and reject the alternate, thus, volume of transaction ratio have significant and negative impact on stock returns at the Nigerian Stock Market.

### 4.1.2 Test of Hypothesis Two

#### Step One: Restatement of the Hypothesis in Null and Alternate forms:

**H<sub>03</sub>:** Turnover ratio does not have significant impact on stock returns of the Nigerian Stock Market.

**H<sub>a3</sub>:** Turnover ratio has significant impact on stock returns of the Nigerian Stock Market.

#### Step Two: Presentation and Analysis of Result

#### Table 4.1.2 Regression Result for Hypothesis Three

. regress LogASI TOr

Source	SS	df	MS	Number of obs = 3712
Model	251.432634	1	251.432634	F( 1, 3710) =21445.67
Residual	43.4966719	3710	.01172417	Prob > F = 0.0000
Total	294.929306	3711	.079474348	R-squared = 0.8525
				Adj R-squared = 0.8525
				Root MSE = .10828

LogASI	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
TOr	.3623563	.0024744	146.44	0.000	.357505 .3672076
_cons	1.042431	.0222671	46.81	0.000	.9987739 1.086088

Durbin-Watson statistic (original) 2.049375

Durbin-Watson statistic (transformed) 2.007667

**Source: Researcher's Stata Result**

$$\text{Log ASI} = 1.04 + 0.362\text{TOr} + \mu$$

Table 4.1.2 indicates the outcome of the regression analysis of the effect of Turnover ratio (TOr) on stock returns measured by logging the All Shares Index (Log ASI) of the Nigerian stock market from 2<sup>nd</sup> January 2001 to 31<sup>st</sup> December 2015. The analysis of hypothesis two reveals that the model for our study is well fitted (F-statistic= 21445.67). The coefficient of determination (R-square), which measures the goodness of fit of the model, indicates that 85.3% of the variations observed in the dependent variable were explained by the independent variables. This was moderated by the Adjusted R-squared to 85.3%, indicating that there are other variables other than our explanatory variables that might also impact on the dependent variable. The result shows that TOr has a positive and significant impact on the Log ASI of Nigerian (TOr coefficient = 0.36, p = 0.00 < 0.05, t-value = 146.44). Durbin Watson statistic is 2.04 which indicate that there is no trace of spatial and serial autocorrelation.

**Decision:**

Based on the result above, we reject the null hypothesis and accept the alternate, thus, market turnover ratio have significant and positive impact on the stock returns of the Nigerian Stock Market.

**4.2 Results implications**

**Objective One: To examine the impact of volume of transaction ratio on stock returns of the Nigerian Stock Market.**

Fama (1990, 1991) points out that a market is weak-form efficient if all the information contains in past stock prices fully reflect in current prices. This implies that past security prices cannot be used to predict the future price changes and hence, technical analysis tools have no value. In contrast, technical analysts believe that information contained in past security prices is not fully incorporated in current security prices, and hence, they believe that by observing the past security prices, information can be obtained on future security prices. The early studies on volume-price relation examined contemporaneous relationships between trading volume and absolute price changes. Hence, they have little relevance on the predictability of future stock prices.

Adding a new paradigm to the trading volume-price relationships, Gervars, Kaniel and Mingelgrin (2001) investigate the role of trading activities in terms of the information it contains about future prices Gervars et al 2001). In other words they are interested in the power of trading volume in predicting the directions of future price movements. They found that individual stocks, whose trading volumes are usually large over period of a day or a week, tend to experience small returns over the subsequent month.

The study used daily All Share Index as a proxy in arriving at the stock returns to examine the impact of volume of shares traded ratio on stock returns from 2<sup>nd</sup> January, 2001 to December 31<sup>st</sup>, 2015 and found in line with works of (Jegadeesh and Titman (1993) that there is a negative relationship between volume of transaction ratio and stock returns. This is due to the past trading volume which influences stock returns.

### **Objective Two: To examine the impact of turnover ratio on stock returns of the Nigerian Stock Market.**

The proposition here is that over time, expected market illiquidity positively affects expected stock excess return. This is consistent with the positive cross-sectional relationship between stock return and illiquidity. If investors anticipate higher market illiquidity, they will price stocks so that they generate higher expected return. This study presents new tests whether liquidity measured by turnover ratio have a positive and significant impact on stock return and found that it was positive and significant. The effects over time of liquidity on stock excess return differ across stocks by their liquidity or size: the effects of both expected and unexpected illiquidity are stronger on the returns of small stock portfolios. This suggests that the variations over time in the “small firm effect”, the excess return on small firms’ stock is partially due to changes in market illiquidity Amihud (2002). This is because in times of dire liquidity, there is a “flight to liquidity” that makes large stocks relatively more attractive. The greater sensitivity of small stocks to illiquidity means that these stocks are subject to greater illiquidity risk which, if priced, should result in higher illiquidity risk premium. The findings of this study support the works of Amihud (2002) indicating that liquidity influences stock returns of the market.

### **5.0 Conclusions**

The study concludes that investor misspecification about future earnings or illiquidity of low volume stocks was attributed in theory to the significant negative impact the value of transactions ratio had on the stock market returns for the period under consideration and is consistent with the study by Khan and Rizwan (2008).The Turnover ratio had a significant



positive impact on the stock market returns because investors for the period under study expected market illiquidity which in theory positively affects stock excess returns according to Amihud (2002) the effects over time of liquidity on stock excess return differ across stocks by their liquidity or size. The effects of both expected and unexpected illiquidity are stronger on the returns of small stock portfolios. This suggests that the variations over time in the “small firm effect”, the excess return on small firms’ stock is partially due to changes in market illiquidity. This is because in times of dire liquidity, there is a “flight to liquidity” that makes large stocks relatively more attractive. The greater sensitivity of small stocks to illiquidity means that these stocks are subject to greater illiquidity risk which, if priced, should result in higher illiquidity risk premium.

## **6.0 Recommendations**

(1) Policies should be considered to alleviate tax burden on capital gains for emerging markets with strong market potentials like Nigeria. Given the importance of financial development to a growing economy, investors should be encouraged to invest more with tax incentives. Scholars have proven that stock market variables have strong statistical significance on a firm’s performance, prospects of attracting more investment and consequently the turnover ratio which this study has shown has a very significantly positive effect on stock returns.

(2) Because the stocks with low trading volume out performs stocks with high trading volume due to investor misspecification and illiquidity, the study recommends trading volume based strategies should be adopted by investors to increase the chances of higher profits. In theory this supports previous evidence supported by previous scholars such as Osaze (2000) that Nigeria’s capital market efficiency is in its weak form.

(3) For academics interested in studying stock market returns in the Nigerian capital market there are suggestions to further research. Further attempts can be made to study the cross-sectional variation of stock liquidity and trading activity given the vulnerability of investors to unexpected market shocks. Two main bodies of theories exist in the literature about the relationship between derivatives market and the underlying spot market. The theoretical literature proposes both a ‘destabilizing force’ hypothesis that predicts increased volatility and a ‘market completion’ hypothesis in which decreased volatility is predicted. Because many of the theories propounded had contradictory conclusions it would be good if further research is made by scholars in future. Researchers can undertake empirical investigation so as to universalize the impact of equity derivatives on the underlying volatility since market information and efficiency of derivative trading have the potential to stabilize or destabilize the underlying market

New theories should be developed by further studies on the “size effect” of market returns on volume and price. Currently theoretical explanations in literature for size effect do not sufficiently explain the gaps in previous research even though there is a general agreement about the importance of size. It is important that more research be made in studying theoretical and empirical applications of models measuring weighty risk management strategies such as portfolio rebalancing. As a risk control strategy knowledge of portfolio rebalancing can be seen where an informed investor acknowledges the usefulness of compounding effect of returns on his portfolio by calculating based on compound average and not simple average.

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