The Impact of Foreign Direct Investments on Stock Market Liquidity in Selected Sub-Saharan African Countries, 1984-2015

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Abstract

This paper investigates the impact of Foreign Direct Investments (FDI) on Stock Market Liquidity in selected Sub-Saharan African Countries from 1984 to 2015. The study selected three sample countries in Sub-Saharan Africa namely:- Nigeria, South Africa and Kenya and obtained secondary data namely Market turnover ratio (dependent variable), Foreign Direct Investment ratio (independent variable) and Gross Domestic Product, from the International monetary funds, World Bank, Bureau of Statistics, Central Banks of respective countries. The methodology adopted was the unit root tests, least square regression and panel data analysis which were tested at the 5% level of significance and the result revealed that FDI had a negative and insignificant impact on Stock Market Liquidity in Sub-Saharan African Countries using market turnover in both short and long-run equilibrium periods. The study concludes that FDI has a negative and insignificant impact on stock market liquidity as measured by market turnover ratio in Sub-Saharan African Countries and this is at variance with the developed countries' experience. The study however, recommends that the governments should encourage compulsory listing of all local MNC/MNE to trap FDI spillovers and improve stock market liquidity; and the regulatory authorities are advised to adopt market friendly regulations especially investor protection and better governance to promote the development of the stock market.

Keywords: Foreign Direct Investments; Stock Market Liquidity; Market Turnover ratio; Value of Stock Traded ratio.

1.0 Introduction

Foreign Direct Investments have been described as a cheap and sustainable source of long term finance for the Stock Market's utilization to meet the long term intermediation needs of the local economy in both private and public sectors to engender real sector development (Desai, Foley and Hines, 2006; World Bank, 2015).

The above scenario presupposes that an increase in foreign direct investment in the local economy will result to increase in availability of long term developmental funds on the stock exchange market and its implication is several including increase in market capitalization as the foreign investors will channel such funds to the acquisition of shares of existing profitable or prospective local enterprise or multinational companies. According to Farole and Winkler (World Bank, 2014), they held that in such a situation, local enterprises will be able to fund their operational, tactical and strategic projects and achieve their profit and capital appreciation goals while the foreign investors hold controlling influence in such businesses. Another implication of increase in foreign direct investment is that it results to increase in stock market liquidity and helps investors to trade in securities easily (Farole & Winkler, 2014). This will lead to increase in market turnover and enhance the long term prospects of Economic Growth of the country. The influx of capital into the stock market will also ginger the listing of more companies and securities on the stock exchange, creating more vibrancy and activities in the market. Increase in the number of companies and securities will result to greater market stability and breed confidence. The value of stock traded will also increase when trading capital on the

stock market increases resulting to greater profitability, reduced risk and diversification of investments in the market. When there is available capital for long term investment, there will be increased product innovations and development of more and improved financial derivatives in the market as obtained in developed countries of the world. The all-share-index which shows the changing average value of the shares of all listed companies on the stock exchange, a measure of how well a market is performing will also increase because of increase in number of listed securities and market liquidity. Hence, in such an ideal situation, the World Bank (2015) posited that an increase in fixed capital (FDI) should cause an increase in stock market size and its development indicators mentioned above. The above position is further supported by Desai et al (2006), Henry (2000), Otchere et al (2011) and Adam and Tweneboah (2008) to mention but a few.

It is observed however, that in reality the above painted scenario most often does not hold as the results of most research works particularly for Less Developing Countries (LDC) run at conflict in majority of cases thus inconclusive when compared with the ideal position as established by the World Bank and a few erudite researchers such as Levine and Zervos (1998) that found a positive and significant relationship between FDI and Stock Market Development indicators in the long-run period; Adam and Tweneboah (2008) found a significant positive impact of FDI on Stock Market Development indicators; and, Soumare and Tchana (2015) that discovered a positive, significant and bi-directional causal relationship between FDI and Stock Market Development indicators. It was also noted that most of the studies carried out focused mainly on Market Capitalization as the only measure of stock market development and used primarily ordinary least square regression as their analytical tools (Kohli, 2003; Desai, Foley and Hines, 2006; and, Adaramola & Obisesan, 2015) while World Bank (2015) recommended four (4) parameters for measuring stock market development. We also observed the problem of domestication or localization from some of the works carried out as most focused on Europe, Asia, North and Southern America and very few on Africa; and the intervening conditions are different. A few of these researches include;

Sulaiman and Mohammed (2014), Singh and Weisse (1998), Lamouchi and Zohari (2013), all observed a negative long-run relationship between FDI and stock market development; while Oke (2012) observed no long-run relationship; but Kohli (2003), Kaleem and Shalibaz (2009) and Chauhan (2013) observed a positive long-run relationship. Singh, (1997) found positive relationship between economic growth and stock market development and also, Oseni and Enilolobo (2011), held from their research that FDI and stock market development had significant positive impact on economic growth in Nigeria. Again, the focus was on market capitalization leaving out other stock market development indicators. We shall review this list in details in our empirical studies.

It is evident from above studies that there are inconsistencies and disagreements on the effects of FDI on stock markets developments; while some researchers studied the relationship between these variables, this study will focus on the 'impact' in the sub-saharan African economies. It was also noted that the stock markets in Sub-Saharan African Countries have not developed in real terms in relation to the foreign direct investments inflows when compared with those of developed countries of the world (World Bank, 2007, 2015). It is our aim in this investigation to resolve such controversies and apply a uniform bench mark in measuring the development of the stock market liquidity in the region in the short and long run equilibrium periods. We studied the effect of FDI on the development stock market liquidity measured by Market turnover ratio in a less developing region like Sub-Saharan African countries. Most of the studies have used ordinary least square regression and the result was above controversial findings; we resolved this by adopting a panel data analysis for our sample study areas using Generalised Least Square regression technique that incorporates time series and panel data features in addition to the least square regression method unlike some earlier researches that focused on time series features only. This effectively assisted us to determine the effect of FDI on the development of stock market liquidities and provided a guide in advising concerned policy makers on what the policy direction should be in order to achieve government relevant objectives.

The aim of this study is to examine the impact of foreign direct investments on the development of stock market liquidity in the Sub-Saharan African Countries using some randomly selected stock markets in the region (Patton, 2002), namely – Nigeria, South Africa and Kenya.

This paper is divided into five sections namely – Introduction, Review of Related Literature, Data and Methodology, Data Presentation and Analysis and Conclusion/Recommendations.

2.0 Review of Related Literature

2.1 Conceptual Framework

2.1.1 Significance of Foreign Direct Investments

According to International Monetary Fund (1999), the significance of Foreign Direct investments include:

i) It is an important source of private external finance for developing countries. It is different from other major types of external private capital flows in that it is motivated largely by the investors' long-term prospects for making profits in production activities that they directly control. Foreign bank lending and portfolio investment, in contrast, are not invested in activities controlled by banks or portfolio investors, which are often motivated by short-term profit considerations that can be influenced by a variety of factors (interest rates, for example) and are prone to herd behavior.

ii) It is also a means of transferring production technology, skills, innovative capacity, and organizational and managerial practices between locations, as well as of accessing international marketing networks.

iii) It brings about improved economic growth due to the influx of capital and increased tax revenues for the host country.

iv) Private Foreign Direct Investments are risk free to the host country and contributes to foreign exchange earnings, employment creation and increases in incomes, especially of skilled and semi-skilled workers in its various industries.

v) Foreign Direct Investments will help improve the quality of products and processes in a particular sector, increased attempts to better human resources.

2.1.2 Stock Market Development

Stock market is a market where buyers and sellers engage in trade of financial securities like bonds, stocks etc and undertaken by participants such as individuals and institutions (World Bank, 2007). The market channels surplus funds from savers to institutions (deficit areas) which then invest them into productive use. This market provides long term finance for real sector developments (Desai, Foley and Hines, 2006). The primary function of stock markets is to serve as a mechanism for transforming savings into financing for the real sector. According to El-Wassal (2013), he noted that from a theoretical perspective, stock markets can accelerate economic growth by mobilizing and boosting domestic savings and improving the quantity and quality of investment. Better savings mobilization may increase the rate of saving and if stock markets allocate savings to investment projects yielding higher returns, the increasing rate of return to savers will make savings more attractive. Consequently, more savings will be channeled into the corporate sector. Efficient stock markets make corporations compete on an equal basis for funds and help make investment more efficient.

2.1.3 Stock Market Development Measurement Variables

Stock market development may be captured using the following indicators:i) stock market liquidity; ii) stock market performance/volatility; iv) stock market concentration; and v) stock market linkage to real sector performance (World Bank, 2015; El-Wassal, 2013; Levine and Zervos, 1998). The adoption of a variety of indicators could provide a more accurate depiction of stock market development. This study captures mainly the development of stock market liquidity variables.

i) Stock Market Liquidity

Sarr and Lybek (2002), observed that one of the most important aspects of stock market development is liquidity. Liquid markets offer a number of benefits: i) they render financial assets more attractive to investors, who can transact in them more easily. In addition, liquid markets allow investors to switch out of equity if they want to change the composition of their portfolio; ii) liquid markets permit financial institutions to accept larger asset-liability mismatches; iii) they allow companies to have permanent access to capital through equity issues; and iv) liquid markets allow a central bank to use indirect monetary instruments and generally contribute to a more stable monetary transmission mechanism.

Analysts generally use the term Liquidity to refer to the ability to easily buy and sell securities. There are five dimensions of market liquidity, which are: tightness, immediacy, depth, breadth and resiliency. Tightness refers to low transaction costs, such as the difference between buy and sell prices. Immediacy represents the speed with which orders can be executed and settled, and thus reflects among other things, the efficiency of the trading, clearing and settlement systems. Depth refers to the existence of abundant orders, either actual or easily uncovered of potential buyers and sellers, both above and below the price at which a security would be trading on the market. Breadth means that orders are both numerous and large in value with minimal impact on prices, and resiliency usually denotes the speed with which price fluctuations resulting from trades are dissipated (Sarr and Lybek, 2002). A sound measure of liquidity will account for the cost associated with trading including the time cost and the uncertainty of finding a counterpart and finalizing the transaction. The most commonly used liquidity indicators include;

a) Total Value of Shares Traded Ratio (TVSTR) – This measures the total value of shares traded on the stock exchange divided by the Gross Domestic Product (GDP). The total value of stock traded ratio measures the organised trading of firm's equity as a share of national output and therefore should positively correlate with liquidity on an economy-wide basis. The total value of shares traded ratio complements the market capitalization ratio; although a market may be large but with little trading (Levine and Zervos, 1998).

b) Market Turnover Ratio (MTR) – This is the total value of shares traded divided by market capitalization and variable measures how liquid a market is. This ratio also complements the market capitalization ratio (Levine and Zervos, 1998). A large but inactive market will have a large market capitalization ratio but a small turnover ratio. Turnover also complements the total value of stock traded ratio. While, the total value traded ratio captures trading relative to the size of the economy, turnover measures trading relative to the size of the stock market. There is thus a positive correlation between capital inflow (savings, FDI etc) and market turnover or liquidity (World Bank, 2015)

ii) Stock Market Concentration

Market concentration may be measured by looking at the share of market capitalization accounted for by the large companies in the market. These large companies are seen by some analysts as being the leading three to five companies in the market (Maunder, Myers, Wall and Miller, 1991). Another indicator in use in measuring the degree of stock market concentration is the share of market capitalization accounted for by the ten largest stocks (e.g. International Finance Corporation, SandP). Concentration adversely affects market development as it hampers market breadth by the concentration of capitalization within a handful of large companies, limiting the range of attractive investment opportunities and thus adversely affecting liquidity in the stock market in question.

iii) Stock Markets and Economic Activity

According to El-Wassal (2013), The relationship between stock prices and real economic activity is circular. Stock prices depend on a company's performance and its growth prospects so that to the degree that a company's performance improves and the rate of return increases, stock prices rise in turn while on the other hand, stock prices should reflect the present discounted value of expected future dividends or expected future growth. From this perspective, stock prices serve as a leading indicator of future changes in real economic activity.

2.1.4.1**The Nigeria Stock Exchange Market**

The **Nigerian Stock Exchange** (**NSE**) was established in 1960 as the Lagos Stock Exchange. As of December 31, 2013, it has about 200 listed companies with a total market capitalization of about N12.88 trillion ($80.8 billion). All listings are included in the Nigerian Stock Exchange All Shares index (World Bank, 2014).

2.1.4.2 The South African Stock Exchange Market

JSE Limited (previously the JSE Securities Exchange and the Johannesburg Stock Exchange) is the largest stock exchange in Africa. It is situated at the corner of Maude Street and Gwen Lane in Sandton, Johannesburg, South Africa. In 2003 the JSE had an estimated 472 listed companies and a market capitalisation of US$182.6 billion (€158 billion), as well as an average monthly traded value of US$6.399 billion (€5.5 billion). As of 31 December 2013, the market capitalization of the JSE was at US$1,007 billion (World Bank, 2014).

2.1.4.3 The Nairobi Stock Exchange market

The Nairobi Securities Exchange (NSE) was constituted as Nairobi Stock Exchange in 1954 as a voluntary association of stockbrokers in the European community registered under the Societies Act. (World Bank, 2014)

2.2.0 Theoretical Framework

This research work is anchored on two basic Theories, namely:

- Theory of Foreign Direct Investments
- Theory of Stock Market Growth

2.2.1 Theory of Foreign Direct Investment

The theory under consideration is the industrial organisation theory which is discussed below;

2.2.2 **Industrial Organisation Theory**

The theory is also known as micro- level theory of FDI and is attributed to the work of Hymer (1960). In the theory Hymer (1960) suggests that the decision to set up value-adding operations abroad depends on the industry and certain aspects of individual companies, rather than the country and national capital availability as suggested by Dunning (1973). The theory makes emphasis on two main points. Firstly, the firms become MNEs due to their possession of competitive advantage and their ability to maximise their productivity by using this competitive advantage in another country. This however, leads to the concept of ownership advantages as discussed by Dunning (1994). Secondly, the competitive structures of some industries would encourage firms to internationalise more than those in other countries.

Hymer's industrial organisation theory of FDI hypothesises that the rate of profit has a tendency to drop in industrialised countries. This is due to domestic competition, thus creating the propensity for firms in underdeveloped countries to engage in FDI. The theory considered tradable ownership advantages and the removal of competition as key requirements for an individual firm in a given industry to invest overseas and thus become an MNE. Hymer (1960), made four assumptions under the micro-level theory of FDI namely;

i. In the post-war years, FDI was two-way between developed and underdeveloped countries. Other theories suggested that the flow of capital was one way from developed to underdeveloped countries.

ii. A country was supposed to either engage in outward FDI or receive inward FDI only. Hymer observed that MNEs moved in both directions across national boundaries in industrialised countries. This implies that countries simultaneously receive inward FDI and engage in outward FDI.

iii. The level of FDI was found to vary between industries. This means that, if capital availability was the driver of FDI, then there should be no variation since all industries would be equally able and motivated to invest abroad.

iv. Due to local financing of foreign subsidiaries, it was not practically plausible that capital moved from one country to another.

Hymer (1976) strongly argued that MNEs can only exist in an imperfect market, when firms have non- financial ownership advantages compared to other firms in the same industry. This means that the determinants for MNEs lie with the individual firms, rather than country's capital availability as suggested by the eclectic theory of FDI. Hymer (1976) further discussed the nature of the market power approach of firms and their oligopolistic interdependence in collusive agreements, as they focus on domination of the market, the raising of entry barriers and the removal of conflict. Hymer (1960) assert that firms invest abroad in order to dominate more markets, raise profits and create more conflict- removing Oligopolies. This means only the largest firms, such as those in an oligopoly environment could sufficiently offset the costs of being foreign with their strong ownership advantages. Congruent with Dunning (1973), Hymer (1976) believed that MNEs investing in foreign markets are, compared to

local firms, faced with certain additional costs and risks in terms of knowledge of local market conditions, cultural, institutional and linguistic barriers and communication and transport costs. Thus, firms that wish to invest through FDIs in these foreign markets must have specific advantages to gain a competitive on local firms in a foreign country.These advantages include advanced technology, research and development capabilities, superior managerial, administrative and marketing skills, access to low- cost funding and interest rate and exchange rate differentials. Hymer (1976) was of the opinion that in the world of segmented national markets which are dominated by home grown monopolists, a merger of two such firms or the acquisition of one by the other would result in externalities or internalisation of MNEs from the latter (creation of a firm spanning the two countries).

The industrial organisation theory is relevant to this study as it points out the reason why foreign investors decide to set up value adding operations abroad depending on industry and certain aspects of individual companies. Firms that want to invest through FDI must therefore have competitive edge on local firms in destined counties through technology, Research and Development, access to low funding, favourable interest rates and exchange rate differentials.

2.2.3 Stock Market Theory

In financial economics, the efficient-market hypothesis (EMH) states that asset prices fully reflect all available information. A direct implication is that it is impossible to "beat the market" consistently on a risk-adjusted basis since market prices should only react to new information or changes in discount rates (the latter may be predictable or unpredictable). The EMH was developed by Professor Eugene Fama who argued that stocks always trade at their fair value, making it impossible for investors to either purchase undervalued stocks or sell stocks for inflated prices. As such, it should be impossible to outperform the overall market through expert stock selection or market timing, and that the only way an investor can possibly obtain higher returns is by chance or by purchasing riskier investments. Fama and Kenneth (2012) showed that the distribution of abnormal returns of US mutual funds is very similar to what would be expected if no fund managers had any skill—a necessary condition for the EMH to hold.

There are three variants of the hypothesis: "weak", "semi-strong", and "strong" form. The weak form of the EMH claims that prices on traded assets (e.g. Stocks, bonds, or property) already reflect all past publicly available information. The semi-strong form of the EMH claims both that prices reflect all publicly available information and that prices instantly change to reflect new public information. The strong form of the EMH additionally claims that prices instantly reflect even hidden "insider" information. Critics have blamed the belief in rational markets for much of the late-2000s financial crisis. In response, proponents of the hypothesis have stated that market efficiency does not mean having no uncertainty about the future, that market efficiency is a simplification of the world which may not always hold true, and that the market is practically efficient for investment purposes for most individuals.

The efficient-market hypothesis emerged as a prominent theory in the mid-1960s. Paul Samuelson had begun to circulate Bachelier's work among economists. In 1964 Bachelier's dissertation along with the empirical studies mentioned above were published in an anthology edited by Paul Cootner. Fama (1965), published his dissertation arguing for the random walk hypothesis. Also, Samuelson published a proof showing that if the market is efficient, prices will show random-walk behavior. This is often cited in support of the efficient-market theory, by the method of affirming the consequent, however in that same paper, Samuelson warns against such backward reasoning, saying "from a non-empirical base of axioms you never get empirical results." In 1970, Fama published a review of both the theory and the evidence for the hypothesis. The paper extended and refined the theory, included the definitions for three forms of financial market efficiency: weak, semi-strong and strong

2.3.0 Empirical Reviews

The various works of notable authors were consulted in the course of this studies on effects of Foreign Direct Investments (FDI) on both Market turnover ratio and Value of listed securities being market liquidity components, were reviewed and the following findings were made;

2.3.1 Empirical Studies of FDI Effects on Market Turnover Ratio

Market turnover ratio is commonly used as a second indicator of liquidity. It gives an indicator of the number of times the outstanding volume of shares changes hands. Turnover ratio equals the value of total shares traded divided by market capitalization. It also indicates liquidity complements traded value to GDP. This indicator measures the size of the stock market while the former (Market turnover/Market capitalization) measures the relative size of the economy.(Maunder et al,1991; El-Wassal, 2013; Henry, 2000).

Yartey and Adjasi (2007) examined the relationship between foreign Direct investment, Market turnover and GDP between 1996 – 2000 for selected African countries using ordinary least square method and concluded that a positive and significant relationship do exist.

Vagias and van-Dijk (2011) examined the nexus between international capital flows and local market liquidity for agroup of forty-six countries in six regions for the period1995:1 to 2008:12. Utilizing a vector auto-regressive technique, the study observed that international capital flows to developed Europe and Asia/Pacific positively responded to local market liquidity, while U.S. market liquidity positively predicted international capital flows to developed and emerging Europe and emerging Asia.

Olowe, Mathew and Fasina (2011), in their study of the efficiency of the Nigeria stock exchange between 1979 and 2008 using multiple regression technique in considering the relationship between economic growth and selected capital market variables. They observed a negative and insignificant relationship between economic growth (GDP) and market turnover ratio.

Otchere et al (2011) investigated the relationship between foreign direct investment, GDP, market capitalization, market turnover ratio and volume of stock traded for African continent from 1996 to 2009 using Panel data analysis and Granger causality tests. The researchers concluded that a positive significant relationship exists.

Bernard and Austin (2012), studied the role of the Nigerian stock market on economic growth from 1994 to 2008. The researchers used the time series analysis adopting the ordinary least square techniques. In the study, turnover ratio and value of traded stock were used as a proxy for the total market liquidity. The results indicate that the turnover ratio is strong and positively correlates with economic growth.

Popoola (2014), studied the effect of stock market on Economic growth and Development of Nigeria using data covering from 1984 to 2008. The study employed the ordinary least square method of analysis and found a positive significant link market turnover ratio and Economic growth. The study advised that policies be made to strengthen the capital market and reduce tax and legal prohibitions.

Osho (2014) used time series data from 1980 to 2010 to examine the role of stock market development and economic growth in Nigeria. The study used the Multiple-regression method of Ordinary least square in testing the formulated hypothesis and used market capitalization ratio, the value of stocks traded ratio and turnover ratio as independent variables. The result revealed that the turnover ratio assumes positive effect on the dependent variable.

Nwosa (2015) studied the relationship between Foreign Direct investment, Foreign Portfolio Investment, Market capitalization, market turnover ratio and value of stock traded ratio for Nigeria covering 1986 – 2013 using Error Correction Model. The researchers concluded that while they observed a significant short-run relationship between FDI/FPI and market capitalization only, there was however, no long-run significant relationship between FDI and market turnover ratio nor value of stock traded ratio.

Aigbovo and Izekor (2015) investigated the nexus between stock market development and economic growth in Nigeria from 1980 to 2011 using co-integration, error correction mechanism and granger causality tests techniques. The variables employed include GDP, market capitalization. Market turnover ratio, Total value of stock traded and All Share Index. The investigation revealed a positive and significant relationship between economic growth and market turnover ratio in the short and long-run periods.

3.0 Data and Methodology

The study adopts the ex post facto research method which is a very common and ideal method in conducting research in business and social sciences. It is mostly used where variables are drawn from already concluded events and there is no possibility of data manipulation.

3.1 Sources and Nature of Data

The data for this work are secondary data drawn from the World Bank statistical data bank, International Monetary Fund (IMF), the data base of the National Bureau of Statistics of the various study country, the statistical bulletin of the Central Bank of Nigeria, statistical bulletin of the Central Bank of South Africa and the Central Bank of Kenya for the range of years under study.

3.2 Descriptions of Variables, Sample Size and Areas of Study

This study focuses on selected economies in the Sub-saharan Africa namely: Nigeria, South Africa and Kenya; our choice of three (3) countries sample is based on the submission of Patton (2002) that purposeful sampling may be selected for information-rich cases and need for most effective use of limited resources by the researcher(s); thus, this research work randomly chose the countries of study based on their large Gross Domestic Product, size and extent of stock market capitalization in Sub-Saharan Africa.

The study employed as its dependent variables: Market Turnover ratio to GDP and Value of stocks traded of all listed companies in the Nigeria Stock Market, Johannesburg Stock Market and the Nairobi Stock Market while the independent variable was foreign direct investment and gross domestic product presence was to moderate our output. The sample period covered by the study was from 1984 to 2015 representing a 32 year period covering the aspects dealing with our data for statistical analyses.

3.3 Model Specification and Description of Variables

This research work adopts the model of Adam and Tweneboah (2008), Karim (2009), Roza and Shahla (2014), Suleiman and Mohammed (2014), Adaramola and Obisesan (2015), Desai, Foley and Hines (2006), Issourma and Tchana (2015) and Nwosa (2015) with slight modifications (for example; removal of non-variable of interests such as Inflation rate, Treasury bills and Exchange rates etc and inclusion of stock market development variables only). The researchers expressed stock market development indicators as a function of FDI with GDP acting as a moderating variable (to help moderate the output from this study in line with parameter ratios used).

$$TUNR = f(FDIR, GDP) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.1$$

These models were transformed to log-linear econometric format to obtain the coefficient of the elasticity of the variables, while reducing the effect of any outlinear variable. In the log-linear regression, the coefficients are easy to interprete as the problems of different units have been solved and the interpretation becomes easy in elasticity terms. Findings with log linear modeling specification are sensitive to functional form (Kalim, 2009) while Layson (1984) argued that log linear is superior to linear form and gives more favourable results.

Thus;

$\log TUNR_t = \alpha_0 + \alpha_1 \log FDIR_t + \alpha_2 \log GDP_t + U_t$ 3.2

$\log TUNR_{it} = \alpha_0 + \beta_1 \log FDIR_{it} + \beta_2 \log GDP_{it} + U_i + V_{it}$ .....3.3 (Fixed effect model)

The apriori expectation of the models is;

TUNR > 0 < FDIR with a positive sign

Where TUNR = Market Turnover ratio to Gross Domestic Product

FDIR = Foreign Direct Investment ratio to Gross Domestic Product

4.0 **Data Presentation and Analysis**

Table 1. Shows NIGERIA (NGN), SOUTH-AFRICA (SA) and KENYA (KEN) Selected data between 1984 –2015

	NGN			SA			KEN		
Year	**TUNR (%)**	**GDP (%)**	**FDIR (%)**	**TUNR (%)**	**GDP (%)**	**FDIR (%)**	**TUNR (%)**	**GDP (%)**	**FDIR (%)**
1984	4.55	-4.6	1.64	3.43	-1.80	0	0.81	2.50	0.11
1985	4.84	5.4	1.69	4.38	0.60	0.02	0.83	-3.50	0.02
1986	6.36	-11.3	2.03	5.05	3.50	2.88	0.87	-2.20	0.01
1987	3.26	-13.3	2.52	7.13	2.30	4.99	0.89	-0.10	0.12
1988	2.58	4.5	1.23	3.49	2.60	4.09	0.91	2.00	0.17
1989	5.42	3.4	6.88	5.09	1.10	5.58	0.92	0.20	0.23
1990	1.95	9.6	1.98	6.02	1.10	-0.07	0.95	-2.60	0.67
1991	1.02	-0.7	4.51	4.37	-1.60	0.21	1.01	-3.40	0.23
1992	1.51	0.4	4.96	4,42	-3.90	2.51	1.07	-4.60	0.08
1993	1.41	2.0	4.71	3.65	-3.00	8.43	1.14	-1.00	2.53
1994	1.50	0.8	6.86	5.15	-0.40	0.27	2.25	0.80	0.10
1995	1.08	-0.5	3.09	5.75	1.30	0.81	2.97	1.00	0.47
1996	2.47	4.7	4.45	11.00	1.10	0.55	3.96	2.40	0.90
1997	3.97	2.5	4.81	18.30	-2.50	2.50	5.38	0.90	0.47
1998	5.91	2.3	2.93	32.20	0.00	0.40	3.55	-1.00	0.19
1999	3.83	0.0	2.17	28.00	0.80	1.24	3.20	0.90	0.40
2000	3.89	4.8	2.58	34.50	-2.40	0.84	3.01	2.60	0.87
2001	3.94	4.2	2.01	24.00	1.20	4.15	3,76	1.20	0.04
2002	4.01	4.0	2.77	26.20	-2.20	0.65	2.61	3.60	0.21
2003	4.23	8.9	2.28	18.80	0.20	0.30	4,78	1.70	0.55
2004	10.59	5.9	1.67	18.90	1.80	0.26	7.29	3.00	0.29
2005	8.78	5.8	3.43	20.30	2.80	2.18	7.90	3.90	0.11
2006	10.96	5.4	2.92	24.40	3.00	0.22	12.00	4.20	0.20
2007	20.45	6.1	2.90	31.10	4.00	2.22	8.45	3.90	2.28
2008	34.79	5.1	4.84	42.00	-2.50	2.63	6.84	1.80	0.26
2009	13.94	6.1	2.32	27.20	0.50	1.83	1.81	-2.90	0.29
2010	10.10	7.0	1.63	30.00	6.10	0.89	5.49	1.50	0.42
2011	9.92	2.1	2.15	28.60	3.40	1.04	8.99	1.70	0.33
2012	9.92	1.5	1.53	25.00	1.50	1.26	8.91	0.70	0.32
2013	9.92	2.6	1.08	24.60	2.90	2.25	8.95	0.60	0.68
2014	8.18	3.5	0.82	26.30	2.40	1.64	9.10	0.00	1.55
2015	8.17	-0.1	0.85	31.80	2.70	1.67	10.02	-0.50	2.28

Source*: World bank data 2016; Nigeria Stock Exchange, 2016; National Bureau of Statistics, 2016; Index Mundi (Standard and Poor's, Global stock market factbook and Supplemental, International Monetary Fund, International Financial Statistics), 2016.*

The table1, shows that the TUNR started from a very low level of 4.55% in 1984 in Nigeria, 3.43% and 0.81% in South Africa and Kenya respectively; and grew to 3.81%(a drop for Nigeria), 28.00% and 3.2% respectively by 1999 but by 2009, while Nigeria TUNR grew to 13.94 %, South Africa and Kenya, however dropped to 27.2% and 1.81% respectively. However, by 2015, we observed a dip on this data for Nigeria to 8.17%,while other countries grew to 31.8 % for South-Africa and 10.02% for Kenya. For both the GDP growth rate and FDIR, we observed a cyclical growth between positive and

negative for instance GDP growth rate was -4.6%, -1.8% and 2.5% for Nigeria, South-Africa and Kenya respectively in 1984 while by 1999 the rates had moved to 0.0%, 0.8% and 0.9% respectively and by 2015 the rates have moved further to -0.1%, 2.7% and -0.5%. The FDIR showed similar trends like the GDP growth rate.

4.1: DIAGNOSTIC TESTS

The aim here is to carry out various diagnostic tests to ensure that our data and model used in this research work conforms to the basic assumptions of the classical linear regression. This will ensure that the output of this process is not error prone and is reliable.

4.1.1: Test for Stationarity

The test for stationarity requires that the variables in the series model must be stationery at a given level and p-value must be significant at that level. Stationerity is attained where the test statistics is most negative and greater than the critical value of the chosen level of significance.

Table 2: Unit Root Tests for Nigeria Data

Variables	ADF Test Statistics	Critical Values @5%	P-value	Order of Integration
FDIR	-7.2699	-3.2217	0.0000	I(1)
GDP	-6.6859	-3.2217	0.0000	I(1)
TUNR	-5.7640	-3.2184	0.0003	I(1)

Source: Author's Eviews 7 computations

Table 2 reports the tests for stationarity properties of the series following the Augumented Dickey Fuller (ADF) statistics. All the variables were found to be stationery at order one (1). At the First difference as reported, the ADF Statistics for the respective variables were more negative than the critical values at 5% significance level. The reported P values were all less than 0.05 chosen level of significance for which cause, the Null Hypothesis of the presence of unit root in all the variables is convincingly rejected. For the purposes of Cointegration analysis and tests, it is also interesting to state that the variables are all integrated of the same order.

Table 3: Unit Root Tests for South Africa Data

Variables	ADF Test Statistics	Critical Values @5%	P-value	Order of Integration
D(FDIR)	-6.1286	-3.2381	0.0002	I(1)
D(GDP)	-4.4892	-3.2381	0.0078	I(1)
D(TUNR)	-10.7389	-3.2381	0.0000	I(1)

Table 3 reports the tests for stationarity properties of the series following the Augumented Dickey Fuller (ADF) statistics. All the variables were found to be stationery at order one (1). At the First difference as reported, the ADF Statistics for the respective variables were more negative than the critical values at 5% significance level. The reported P values were all less than 0.05 chosen level of significance for which cause, the Null Hypothesis of the presence of unit root in all the variables is convincingly rejected

Table 4 : Unit Root Tests for Kenya Data

Variables	ADF Test Statistics	Critical Values @5%	P-value	Order of Integration
D(FDIR)	-6.7828	-3.2217	0.0000	I(0)
D(GDP)	-6.5487	-3.2184	0.0043	I(0)
D(TUNR)	-5.0976	-3.2292	0.0101	I(0)

Source: Author's E-view 7 Computation

Table 4 reports the tests for stationarity properties of the series following the Augumented Dickey Fuller (ADF) statistics. All the variables were found to be stationery at order zero (0). At levels as reported, the ADF Statistics for

the respective variables were more negative than the critical values at 5% significance level. The reported P values were all less than 0.05 chosen level of significance for which cause, the Null Hypothesis of the presence of unit root in all the variables is convincingly rejected.

TABLE 5 – PANEL UNIT ROOT RESULT

Variables	LLandC Test Statistics	Critical Values @5%	P-value	Order of Integration
D(FDIR)	-7.01822	-7.258	0.0000	I(1)
D(GDP)	-7.2267	-7.532	0.0000	I(1)
D(TUNR)	-4.8947	-5.062	0.0000	I(1)

Source: Author's E-view 7 Computation

The Table 5, shows the stationerity tests for the panel data series following the Levin, Lin and Chu (LLC) statistics. All the panel variables were found to be stationery at first difference level (1). At first difference levels as reported, the variable p-value were all 0.0000 and less than the 5% chosen significance level and thus we reject the Null hypothesis of the presence of Unit root and accept the alternative that there is no unit root and stationerity is attained by all the variables at the first difference levels.

4.1.2 Test for Heteroskedasticity (Arch)

The assumption of the classical linear regression that the variance of the errors is constant is known as *Homoskedastycity*. If the variance of the errors is not constant, this would be known as *Heteroskedasticity.* Hence, we test for the presence of heteroskedasticity with the intention of treating same if found. The treatment method adopted here is the Autoregressive conditionally Heteroscedastic test known as ARCH. The Null hypothesis states that there is no Heteroscedasticity if the p-value is greater than the level of significance (Brooks, 2014).

Table 6: Heteroskedasticity Table Result for Nigeria

Heteroskedasticity Test: ARCH			
F-statistic	2.655278	Prob. F(1,28)	0.1144
Obs*R-squared	2.598520	Prob. Chi-Square(1)	0.1070

Source: Author's E-View 7 computations

The null hypothesis states that there is No heteroskedasticity if p-value is not significant and is greater than the chosen level of significance of 5%. Hence, in this case we accept the Null hypothesis that there is no evidence of heteroskedasticity since p-value is greater than 5% significance level.

Table 7:Heteroskedasticity table Result for South Africa

Heteroskedasticity Test: ARCH			
F-statistic	1.275092	Prob. F(1,26)	0.2691
Obs*R-squared	1.308981	Prob. Chi-Square(1)	0.2526

Source: author's E-view 7 computations

From table 7 for South Africa, we accept Null hypothesis that there is No heteroskedasticity since p-valueis greater than the chosen level of significance of 5%. This was arrived at after one (1) period lag treatment.

Table 8: Heteroskedasticity Table Result for Kenya

Heteroskedasticity Test: ARCH			
F-statistic	0.194578	Prob. F(2,23)	0.8245
Obs*R-squared	0.432595	Prob. Chi-Square(2)	0.8055

Source: Author's E-view 7 Computation

For Kenya, we accept Null hypothesis that there is No heteroskedasticity since p-value is greater than the chosen level of significance of 5%.

4.1.3 Test For Serial Correlation – Breusch-Godfrey (BG) Tests

The Breusch-Godfrey tests is used to test for the presence or absence of serial or autocorrelations in the model with the Null hypothesis stating that there is No autocorrelation. This holds if p-value is greater than the chosen level of significance otherwise reject.

Table 9 : Breusch-Godfrey Serial Correlation Test – Nigeria

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.382660	Prob. F(2,19)	0.2750
Obs*R-squared	3.557447	Prob. Chi-Square(2)	0.1689
Test Equation:			

Source: Author's E-view 7 computations

From table 9, the p-value is greater than the chosen level of significance of 5%, indicating the absence of autocorrelation in the model. This is further enhanced with a Durbin-Watson statistics of 1.653. Hence, we do not suspect any violation of the assumptions of classical linear regression. The applicable treatment was to lag the variables by four (-4) periods.

Table 10: Breusch-Godfrey serial correlation Test for South Africa

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.524342	Prob. F(2,21)	0.5995
Obs*R-squared	1.426867	Prob. Chi-Square(2)	0.4900
Test Equation:			

Source: Author's E-view 7 computation

From table 10, the p-value is greater than the chosen level of significance of 5%, indicating the absence of autocorrelation in the model for South Africa. This was arrived at after treating the variables with a one (1) period lag.

Table 11: Breusch-Godfrey Serial Correlation Test – Kenya

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.303660	Prob. F(4,19)	0.8719
Obs*R-squared	1.802615	Prob. Chi-Square(4)	0.7720
Test Equation:			

Source: Author's E-Views 7 computation

From table 11, the p-value is greater than the chosen level of significance of 5%, indicating the absence of autocorrelation in the model. This was arrived at after treating the variables with a one (1) period lag.

4.2 Hypothesis Testing

Ho_1: Foreign direct investment has no significant effect on stock market turnover ratio to Gross Domestic Product.

HA_1: Foreign direct investment has significant effect on stock market turnover ratio to Gross Domestic Product.

Table 12: Regression Result for Nigeria

Dependent Variable: TUNR				
Method: Least Squares				
Date: 03/11/17 Time: 16:30				
Sample (adjusted): 1985 2012				
Included observations: 28 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.144019	3.076981	1.346781	0.1906

FDIR(2)	-0.788687	0.666723	-1.182931	0.2484
GDP(3)	0.245386	0.370922	0.661556	0.5146
TUNR(-1)	0.637848	0.151486	4.210615	0.0003
R-squared	0.515654	Mean dependent var		6.879643
Adjusted R-squared	0.455110	S.D. dependent var		7.110181
S.E. of regression	5.248497	Akaike info criterion		6.285324
Sum squared resid	661.1213	Schwarz criterion		6.475639
Log likelihood	-83.99454	Hannan-Quinn criter.		6.343505
F-statistic	8.517104	Durbin-Watson stat		1.903420
Prob(F-statistic)	0.000499			

The R^2 and Adjusted R^2 both showed 51.57% and 45.51% respectively. This shows that the chosen regression model best fits the data. Hence, the goodness of fit regression model is 51.57% and implies that chosen explainatory variables explains variations in the dependent variables to the tune of 51.57%. Also, with a high Adjusted R^2 (45.51%) implies that the model can take on more variables conveniently without the R^2 falling beyond 45.51%, which is good. The F-statistics of 8.5171, probability (F-statistics) of 0.000499 and Durbin-Watson Statistic of 1.90342 (Showing absence of autocorrelation) are considered impressive being positive and significant.

From table 12, the Nigeria FDIR(2) at lead 2, has a t-statistic value of -1.18293 and a p-value of 0.2484, was found to have a negative and statistically insignificant effect on market turnover ratio at 5% level since its p-value is well above 0.05. Therefore, we accept null hypothesis to reject the alternative. Similarly, the GDP(3) at lead 3, has a t-statistic value of 0.6616 and p-value of 0.5146 and this effect is positive and statistically not significant at the 5% level. The implication of this result is that FDIR has a depressive effect on market turnover ratio and that a 1% increase in future FDIR will result to a 0.7887% fall in Market turnover ratio (liquidity) in Nigeria.

Table 13: Regression Result for South Africa

Dependent Variable: TUNR				
Method: Least Squares				
Date: 03/11/17 Time: 17:06				
Sample (adjusted): 1985 2011				
Included observations: 25 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.801314	3.282158	1.767530	0.0917
FDIR(2)	-0.681900	0.698716	-0.975934	0.3402
GDP(4)	0.152059	0.672075	0.226252	0.8232
TUNR(-1)	0.799499	0.140709	5.681943	0.0000
R-squared	0.760721	Mean dependent var		18.47720
Adjusted R-squared	0.726538	S.D. dependent var		11.81435
S.E. of regression	6.178143	Akaike info criterion		6.625559
Sum squared resid	801.5584	Schwarz criterion		6.820579
Log likelihood	-78.81949	Hannan-Quinn criter.		6.679649
F-statistic	22.25456	Durbin-Watson stat		2.259863

Prob(F-statistic)	0.000001			

Source: Author's E-view 7 computations

The R^2 and Adjusted R^2 both showed 76.07% and 72.65% respectively. This shows that the chosen regression model best fits the data. Hence, the goodness of fit regression model is 76.07% and implies that chosen explainatory variables explains variations in the dependent variables to the tune of 76.07%. Also, with a high Adjusted R^2 (72.65%) implies that the model can take on more variables conveniently without the R^2 falling beyond 72.65%, which is acceptable. The F-statistics of 22.255, probability (F-statistics) of 0.000001 and Durbin-Watson Statistic of 2.2599 (Showing absence of autocorrelation) are considered very impressive and significant.

From table 13, the South Africa FDIR(2) at lead 2, has a t-statistic value of -0.9759 and a p-value of 0.3402, was found to have a negative and statistically insignificant effect on market turnover ratio at 5% level since its p-value is well above 0.05. Therefore, we accept null hypothesis to reject the alternative. Similarly, the GDP(4) at lead 4, has a t-statistic value of 0.2263 and p-value of 0.8232 and this effect is positive and statistically not significant at the 5% level. The presence of the GDP is to moderate the outcome of both the dependent and independent variable. The implication of this result is that FDIR has a depressive effect on market turnover and a 1% increase in future levels of FDIR will result to a 0.682% drop in Market turnover (liquidity) in South Africa.

Table 14: Regression Result for Kenya

Dependent Variable: TUNR				
Method: Least Squares				
Date: 03/11/17 Time: 15:19				
Sample (adjusted): 1985 2012				
Included observations: 26 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.499952	0.654159	0.764266	0.4528
FDIR(3)	0.609132	0.608115	1.001673	0.3274
GDP(3)	-0.141960	0.182667	-0.777149	0.4453
TUNR(-1)	0.829215	0.122386	6.775420	0.0000
R-squared	0.691369	Mean dependent var		3.833462
Adjusted R-squared	0.649283	S.D. dependent var		3.198641
S.E. of regression	1.894280	Akaike info criterion		4.256193
Sum squared resid	78.94253	Schwarz criterion		4.449746
Log likelihood	-51.33051	Hannan-Quinn criter.		4.311929
F-statistic	16.42748	Durbin-Watson stat		2.059488
Prob(F-statistic)	0.000008			

Source: Author's E-view 7 computations

Table 14 shows an R^2 and Adjusted R^2 of 69.14% and 64.93% respectively. This shows that the chosen regression model best fits the data. Hence, the goodness of fit regression model is 69.14% and implies that chosen explainatory variables explains variations in the dependent variables to the tune of 69.14%. Also, with a high Adjusted R^2 (64.93%) implies that the model can take on more variables conveniently without the R^2 falling beyond 64.93%, which is acceptable. The F-statistics of 16.427, probability (F-statistics) of 0.000008 and Durbin-Watson Statistic of 2.0595 (Showing absence of autocorrelation) are considered very good being positive and significant.

Hence, from table 14, the Kenya FDIR(3) at lead 3, has a t-statistic value of 1.00167 and a p-value of 0.3274, was found to have a positive and statistically insignificant effect on market turnover ratio at 5% level since its p-value is well above 0.05. Therefore, we accept null hypothesis to reject the alternative. Equally, the GDP(3) at lead 3, has a t-statistic value of -0.7772 and p-value of 0.4453 and this effect is negative and statistically not significant at the 5% level. The presence of the GDP is to moderate the outcome of both the dependent and independent variable. The implication of this result is that a 1% increase in future levels of FDIR will have a positive effect on market liquidity and result to a 0.6091% increase in Market turnover (liquidity) ratio in Kenya.

Table 15: RESULT - MARKET TURNOVER RATIO - PANEL EGLS TEST

Dependent Variable: TUNR				
Method: Panel EGLS (Period weights)				
Date: 03/10/17 Time: 10:24				
Sample (adjusted): 1987 2015				
Periods included: 29				
Cross-sections included: 3				
Total panel (unbalanced) observations: 83				
Linear estimation after one-step weighting matrix				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.835327	0.170731	4.892660	0.0000
FDIR(-3)	-0.068825	0.072133	-0.954143	0.3445
GDP(-3)	0.011080	0.029056	0.381335	0.7045
TUNR(-1)	0.969204	0.009411	102.9881	0.0000
	Effects Specification			
Period fixed (dummy variables)				

Source: Author's E-views computation

From table 15, FDIR(-3) at lag 3, has a t-statistic value of -0.9541 and a p-value of 0.3445, was found to have a negative effect on market turnover ratio and this effect is statistically not significant at 5% level since its p-value is well above 0.05. Therefore, we accept null hypothesis and reject the alternative.

Also, the GDP(-3) at lag 3, has a t-statistic value of 0.3813 and p-value of 0.7045 and this effect is statistically not significant at the 5% level. Though its presence acts as a moderating variable in the model, it doesnot have any significant effect on market turnover ratio. This result indicates that the coefficients of the past levels of FDIR has a negative sign and depressive effect on market turnover ratio (liquidity) at the 5% level of significance and the implication is that a 1% increase in foreign direct investment will result to a 0.0688% fall in market turnover

Table 16: Result of Cointegration Tests

Pedroni Residual Cointegration Test			
Series: TUNR FDIR GDP			
Date: 04/06/17 Time: 23:33			
Sample: 1984 2015			
Included observations: 96			
Cross-sections included: 3			
Null Hypothesis: No cointegration			
Trend assumption: Deterministic intercept and trend			
User-specified lag length: 1			
Newey-West automatic bandwidth selection and Bartlett kernel			
Alternative hypothesis: common AR coefs. (within-dimension)			

				Weighted	
		Statistic	Prob.	Statistic	Prob.
Panel v-Statistic		-0.640688	0.7391	-1.354783	0.9123
Panel rho-Statistic		0.400613	0.6556	0.586417	0.7212
Panel PP-Statistic		-0.086343	0.4656	0.167838	0.5666
Panel ADF-Statistic		-0.376297	0.3533	-0.425962	0.3351

Author's Eview 7 Computations

The cointegration test result in table 16, shows there is no cointegration between FDIR and TUNR as the respective p-value is above the 5% significance level for the V-stat (0.7391 and 0.9123), rho-stat (0.6556 and 0.7212), PP-stat (0.4656 and 0.5666) and ADF-stat (0.3533 and 0.3351). Hence, we accept the Null hypothesis to reject the alternative that there is No cointegration between FDIR and TUNR.

Decision Rule: We accept the null hypothesis and reject the alternative that foreign direct investment has a negative and statistically insignificant effect on market turnover ratio in both short and long-run equilibrium period.

4.3 Discussion of Findings

The result of the panel data analysis shows that foreign direct investment has a negative and insignificant effect on stock Market turnover in the Sub-Saharan African region in both short and long-run equilibrium periods. The study showed that past levels of foreign direct investment has a negative (t-statistic of -0.9541) and statistically insignificant effect (p-value of 0.3445) on stock market turnover ratio at the 5% level of significance. The coefficient of the past levels of FDIR has a negative sign (-1.1456%) at the chosen level of significance. This result indicates that the coefficients of the past levels of FDIR has a negative sign and depressive effect on market turnover ratio (liquidity) at the 5% level of significance .This implies that a 1% increase in past levels of FDIR will result to a 0.0688% drop in stock market turnover ratio. The result of this study is corroborated by the study of Olowe, Mathew and Fasina (2011), Aduda et al (2013), and Nwosa (2015), whose study found a negative and insignificant effect of FDI on stock market turnover (liquidity). The Hymer Industrial organizational theory does not seem to hold good in the Sub-Saharan African case. Similarly, a cascaded test of this objective on individual study country basis revealed a negative and statistically insignificant effect of FDI on stock market turnover ratio (liquidity). A reasonable direct interpretation of this result is that government foreign direct investment policies in the Sub-Saharan African region are not market-friendly. It shows that there is liquidity dearth in the Sub-Saharan African stock markets and also could imply that the body-language of successive governments in the region have been repulsive to foreign investors.

5.0 **Conclusion and Recommendation**

That foreign direct investment had negative but no significant effects on stock market turnover ratio of the countries studied. Based on the findings from this investigation, we recommend that;

1. The governments should ensure compulsory listing of all local MNC/MNE (FDI benefiting institutions) to improve stock market indicators such as Market liquidity.

2. The regulatory authorities are advised to adopt market friendly regulations especially investor protection and better governance regulations to promote the development of the stock market.

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