Evaluating Sustainable Relationship between Stock Market Development and Nigeria's Economic Growth.

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ABSTRACT

Our paper investigates the sustainable relationship between the stock market development and Nigeria's economic growth with Zivot Andrew structural unit root test and Autoregressive Distributed Lag model (ARDL) technique from1980–2020, we discovered an evidence of a long-run link between Nigeria's economic progress and stock market size at a speed of adjustment of 60% per annum. Further evidence shows that in the long run, market liquidity (TVR) showed a positive (coef =1.4) but insignificant (prob = 0.7) effect on economic performance. As much as the Nigerian stock market is growth inducing, evidence shows that the market indicators failed to produce significant effect on the growth of the economy in the long-run. To achieve a long-lasting impact, the market needs to be deepened (liquidity) through enhancing its trading infrastructures and policies. Furthermore, Security and Exchange Commission needs to encourage and lure unquoted firms which have attained some certain level of capitalization to get listed on the exchange.

Keywords: Nigeria, Stock market, Sustainable relationship, ARDL, Zivot Andrew test.

INTRODUCTION

Stock markets importance and roles have been widely recognized and noted in the financial literature. These include savings mobilization, funds allocation for investments, portfolio and risk diversification, provision of liquidity to investors, and acquisition and conveyance of corporate information (Beck and Levine, 2003; Rousseau and Wachtel, 2000; Levine and Zervos, 1998; Greenwood and Smith, 1996; Davereux and Smith, 1994; Obstfeld, 1994; Sharp and Bailey, 1999. Other roles include attracting foreign portfolio investments, and balancing debt–to–equity ratio to prevent too much dependence on debt financing (Yartey and Adjasi, 2007).

There are theoretical and empirical evidences in support of the nexus between stock market and economic growth (Bencivenga, Smith and Starr, 1996; Levine and Zervos, 1996; Devereux and Smith, 1994; Goldsmith, 1969; Mckinnon, 1973; Levine, 1991; King and Levine, 1993; Atje and Jovanovich, 1993; Demirgue–Kunt and Levine, 1996; Demirgue–Kunt, 1994; and Jensen and Murphy, 1990). This has been earlier posited in the work of Schumpeter (1912) which hinged the relationship on finance-growth hypothesis, asserting that stock markets promote economic growth. The finance nexus runs through mobilization of savings, allocation of funds, creation of liquidity and diversification of risk (Levine and Zervos, 1996; Khan, 2000; Carporale, Houwells and Soliman, 2004). Through these Channels economic growth is engendered.

Further, among other scholars who equally discovered a positive association between stock markets and economic growth are (El-Wassal, 2013; Nguyen, 2019; Mollaahmetoğlu and Akçalı, 2019; Al-Yousif,

2012; Boca, 2011; Beck, Levine and Loayza, 2000; Magnusson and Wydick, 2002; Greenwood and Smith, 1997; Chee, Zulkormain, Siong and Khim, 2003; Peter and Alan, 2003; Adjasi and Biekpe, 2005; Obstefeld, 1994 and Rateb, 2005). These researchers argue that a functional stock market provides a foundation and stimulus for the growth of economy when resources and investments are efficiently allocated. Thereby providing further evidences that stock market at optimal stage assumes an important catalyst for economic growth. Their effect on the economy is dependent on the stage of stock market development (Holmstrom and Tirole, 1993; Allen, 1993; Kyle, 1984).

Further, in the long run perspective, stock markets can also induce and sustain economic growth in a sustainable manner; however market liquidity is very essential to achieve this. Liquid markets can enhance the allocations of capital and improve prospect for long-term investments. It can attract more investments to projects that need long-term capital expenditures (Levine, 1991). Going by the exploratory empirical works, it was found that some stock markets have had significant effect on economic well-being on long-term (see Christopoulos and Tsionas, 2004; Pradhan, et al. 2017; Beck et al. 2000; Zhang et al. 2016; Durusu-Ciftci et al. 2017; Kalideen and Abdul Majeed, 2021).

Conversely, there is strong contention from researchers who posit that stock markets have no positive correlation with economic growth. Studies like Calamanti (1983), Mayer (1988), Vishny (1986), Hamid and Singh (1992), Beck and Levine (2002), Stiglitz (1985), Bhide (1993), Fry (1998), Summer (1988), Singh (1999), Loyza and Beck (2000) and Ghirmay (2004) disclosed a negative linkage between stock market and economy. For example, Summer (1988) claims that stock market activities can unexpectedly be counterproductive to economies stating that they may even trigger unhealthy rivalry among corporations which instead of focusing on shareholders' fund maximization and long-term investment outlook are however pursuing immediate gains. In a related perspective Stiglitz (1985) argues that stock market does not promote gathering of corporate information and institutionalization of corporate governance. Also, Mayer (1988) claims that stock markets even at their advanced level does not constitute a significant source for corporate financing.

Focusing on developing economies, Singh (1999) states that stock markets are "costly irrelevance" to most African economies and this would jeopardize the African economies and their high expectations of benefits thus worsening their precarious situations given their fragile banking system. Further, Calamanti (1983) cautions that stock market due to its inherent risks may inadvertently constitute a constraint on economic growth in developing economies by causing economic uncertainty and misallocation of savings. The debate is ongoing with contemporary scholars taking different standpoints such as works done by (Marques, Marques and Fuinhas, 2013; Srinivasan and Karthigai, 2014; Fethi and Katireioglu, 2015; Lei and Mishra, 2015; Kirikkaleli, 2016; Pradhan, 2018; Sattar, Ali, Rehman and Naeem, 2018; Camba, Jr. and Camba, 2020; Pradhan, Arvin, Nair, and Bennett, 2020; Kalideen and Abdul Majeed, 2021; Nkemgha et al., 2023; Abayomi & Yakubu, 2022; Azimi, 2022; Ezeibekwe, 2021).

The Nigeria's economic growth has had a checkered history characterized with unsteady movement, in fact, the immediate past decade has witnessed numerous financial instabilities and economic recessions which impacted negatively on Nigeria's growth. For instance, within the decade, Nigeria has seen two economic recessions resulting in its dwindling growth (see Nigerian Capital Market Statistical Bulletin, 2020). The Nigeria's Economic Recovery and Growth Plan (ERGP) 2017-2020 medium term framework is quite commendable. Part of the Government targets include pulling 100 million Nigerians out of poverty, reducing the high unemployment rate and creating a virile and sustainable economy. To achieve these the economy needs to be robust

enough to withstand economic shocks and prevent further recessions with ample sustainability supports and enablers. However, the framework seems not to have shown adequate recognition of the capabilities and efficacy of stock market as a tool for ending the country's economic challenges. Both in developed and

developing economies, stock markets have been proven by some researchers as a catalyst for growth. We think that one of the effective ways to realizing the Nigeria's ambitions is by building a strong and efficient stock market that can bring about long term and sustainable growth. Therefore the aptness and urgency of this study cannot be overemphasized. Since Nigeria is in pursuit of elixir for a viable economic growth, it has become extremely important to establish whether Nigeria's stock market has long run relationship so as to expedite the prioritization and direction of fiscal and monetary policies. Consequently, the broad aim of our work is to investigate the sustainable impact of Nigeria stock market on economic growth using ARDL technique between 1980 and 2020.

In Nigeria, researchers have carried out analysis on stock market and the economy with mixed results indicating an on-going debate in this topic. However on the long-lasting relationship and effect, only a scant number of works have been undertaken. As we much acknowledge the contributions of these scholars, our work distinguishes itself in several ways thus improving on previous studies. First, we introduced a very important stock market indicator which has been often neglected in earlier works – number of listed companies. This indicator can be used to measure market size (Capasso, 2006). It represents the breadth of the market and is advantageously free from miss-measurement due to fluctuations in the market (Karolyl, 2004; Bakaert, Harvey and Landbland, 2003 and Rajan and Zingales, 2003). In any developing economy, the importance of its inclusion in determining market size cannot be overstated. It is an absolute figure and is devoid of likely manipulation associated with its counterpart — market capitalization indicator which is often inaccurate due to mismeasurement of GDP. In the reviewed works, market capitalization ratio has always been the only indicator used to capture market size. No doubt this can be a costly negligence. Here we use the two indicators jointly as according to El-Wassal (2013) and Capasso (2006), both of them are important and play complementary roles and should be used simultaneously for robust results. Further, according to Brook (2008) it will be a grave error to omit relevant variables in scholarly research which will produce inaccurate inference.

Second, we use structural break unit root test by Zivot Andrews (1992) as opposed to the conventional stationary tests by Augmented Dickey Fuller and Philip Perron which are frequently used by Nigerian scholars. The use of structural unit root test becomes appropriate because the Nigerian economic system has experienced varied structural changes, shocks and economic instabilities, therefore using traditional tests may lead to producing spurious results (Chaudhuri & Wu, 2003; Arestis & Mariscal, 1999). Besides, time series data with an extended time period is bound to witness economic changes and shocks (Basher & Westerlund, 2009). ADF and PP tests lack capabilities to handle the inherent variations emanating from the shocks as they are designed for low power tests (Gujarati 2013). Zivot Andrews (ZA) considers and takes care of variations typical of financial statistics arising from changes in policy, reforms or somersaults, and political uncertainties. In addition, ZA has sufficient capacity to produce credible results in the face of long-time data. This work used the latest and expanded observations (1980 – 2020) more than previous studies. Lenth (2001) and Melville and Goddard (2001) state that sample must be large enough to represent the population. The rest of the paper is structured thus: Section 2 is the review of literature, that of 3 is methodology, 4 is results and discussion while 5 is the conclusion.

REVIEW OF LITERATURE

Nigeria's Stock Market Landscape.

In the Nigeria context, the Nigeria Exchange Group (NGX) has achieved quite a good record of progress in policy and infrastructural developments. In the area of market infrastructures, it was in 1987 that NGX (formerly Nigeria Stock Exchange) got connected with Reuters Electronic Contributory System for real-time publicizing of market activities across the world. In 1996 and 1997 respectively, the market introduced CAPNET to enable communication between local and foreign market participants as well as Central

Security Clearing System (CSCS) to facilitate rapid clearing and delivery of securities. Among others are launching of the automated trading system (ATS) in 1999 and Trade Alert in 2005 for protecting investors from unprofessional and fraudulent practices in the market. These advancements are geared towards binging the marker to an international standard for efficient and effective service deliveries.

With respect to policy initiatives, the Nigerian Government has abolished and promulgated many laws and operations to lay a solid foundation for enhanced activities. Specifically, to make the market competitive and more friendly, the Nigerian capital market was deregulated in 1993. Further, in 1995, two decrees were enacted (Nigerian Investment Promulgation Commission and the Foreign Exchange Decrees) to help internationalize the market and attract foreign investors resulting in the repeal of indigenization laws. The Exchange established its share index termed All-Share Index (ASI) in 1984 (base year) at 100 basis mark. ASI represents overall market index which contains common stocks alone in its calculation. In September 1992, it reached 1000 points and has achieved 39,631.1 points as at 31st December, 2020.
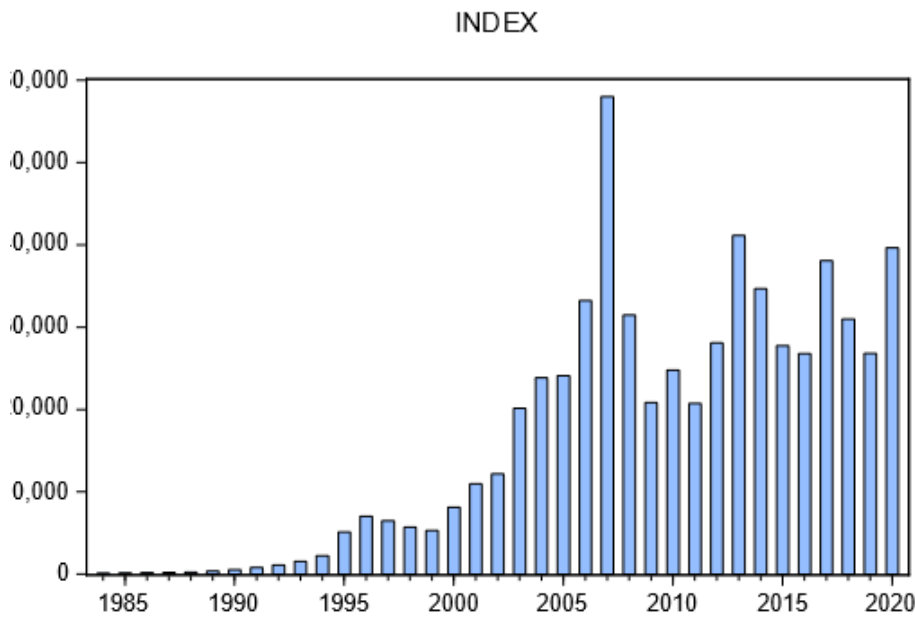
Figures 1, 2 & 3
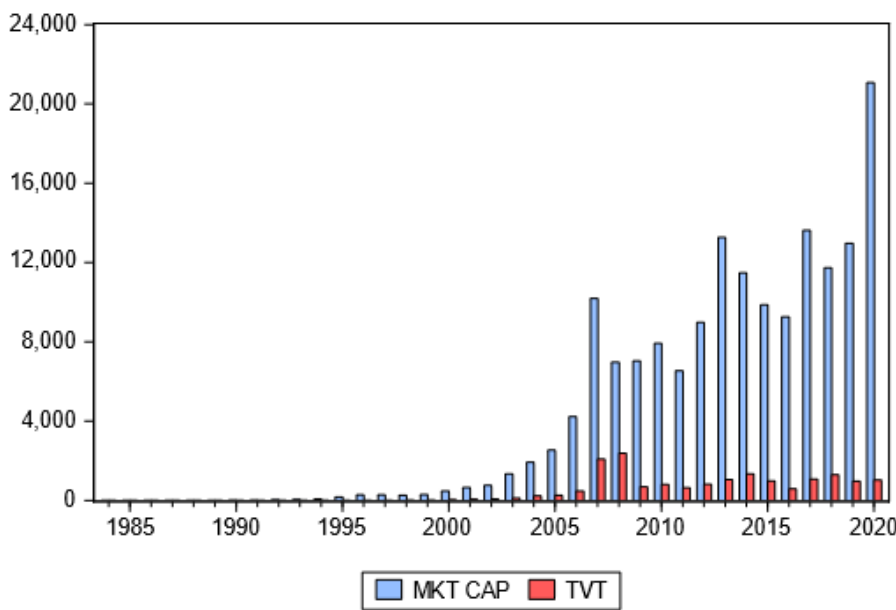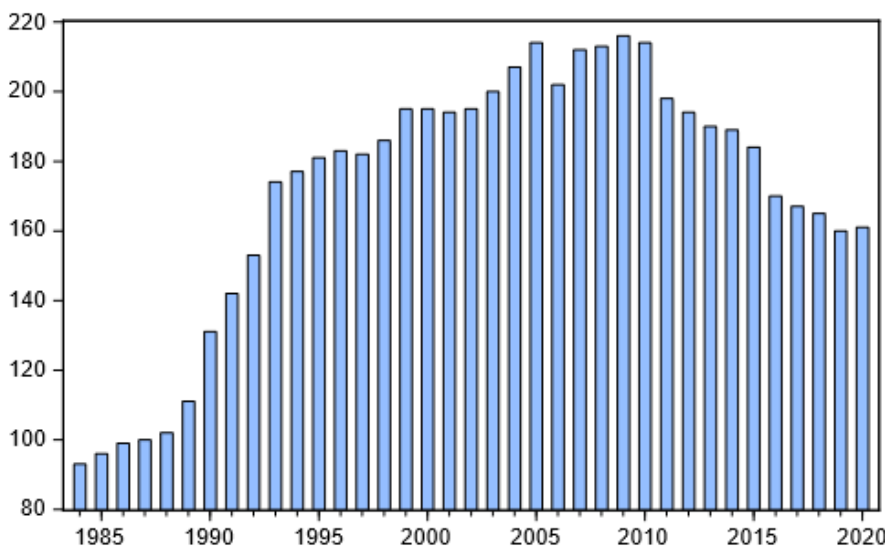
Figure 1 is in billions of Nigerian naira and illustrate the growth patterns of nominal values of both market capitalization and total shares traded. It displays an unsteady upward movement in the two market indicators recording a 9 percent average growth rate between 1984 and 2020, with market capitalization showing a remarkable growth trajectory. Both of them nosedived during the 2007- 2009 global financial crisis before gradually rising again. Market capitalization recorded its highest growth in 2020 at about N21 trillion whereas total shares traded peaked at about N2 trillion in 2008. Figure 2 represents the number of firms quoted in the NGX, its shape exhibits a bell-shaped figure indicating a fairly normal distribution. The exchange had the highest number of listed companies in 2009 with 216 corporate firms. Figure 3 shows the market index which is used here to illustrate the general market performance, specifically the market price movements. It had its highest performance in 2007 with 57,990.2 index level. Largely the market has done fairly well rising from 100 level to 39,631.1 level in 2020. Let it be noted that the ASI exhibits some level of volatility as the prices moved up and down in the period under review

In view of the above background, one can justly say that some important developments have been recorded in NGX. These are obvious in terms of market infrastructural advancement, rise in the number of market operators and varieties of financial securities available on the Exchange. According to Olusegun, Oluwatoyin and Fagbeminiyi (2011), these achievements have helped to attract investors participation in the market. Therefore, without doubt, it can be stated that the NGX is considerably set to contribute to Nigerian economic growth. This claim had been earlier assumed by EI-wassal (2005) when he posited that such remarkable improvements in developing markets is sufficient to engender positive effects on their economies.

THEORETICAL UNDERPINNING

Our work is underpinned on endogenous growth theory which postulates that stock markets can contribute to growth of economies by creating avenues for savings and investment (Levine and Zervos, 1998). Among the first proponents of this theory are Bencivega and Smith (1991) who recognized the avenues through which stock markets can induce economic growth in the extended period of time. Further, Pagano (1993) has added that through the instrumentality of endogenous growth framework, stock markets can promote growth via savings rate, rise in savings and investments, increased capabilities of capital productivity and enhanced resource distribution. In a corroborating stance, Agarwal (2001) has averred that endogenous

assumption is fundamental to the positive association between financial development and economy. The theory becomes apt in Nigerian context where there is existence of Nigeria Exchange Group for mobilization of savings and investments which are allocated to maximize productivity for the growth of the economy. The application and efficacy of this framework in Nigerian context will help to ascertain the efficiency of Nigeria stock market.

Empirical Review

The empirical studies discussed below examined the contribution of the stock market to economic growth both in the developing and advanced nations. There has not been any consensus from these studies; the results with respect to impact on growth are mixed (positive, negative, significant, or non-significant). In the developing countries and specifically in Nigeria, there is preponderance of findings that established positive coefficients (relationship) of the market indicators more than those with negative coefficients. But regarding the relationships having significant impact, there is more or less balance between significant results and insignificant ones. It is necessary to state that investigation on long-run is very uncommon, particularly in Nigerian context.

In carrying out these studies, variety of methodological techniques have been adopted by the researchers; greater majority of them used ordinary least square method (OLS), few adopted vector error correction model (VECM), while very few employed autoregressive distributed lag model (ARDL), and same with vector autoregressive model (VAR). Most of the works that employed OLS could not prove the exogeneity of their independent variables. More, as has been noted earlier, there is a virtual omission of NLCs as an indicator in all these works. (One or two studies that included it left out some other important and complementary market indicators in their variables).

In Nigeria among the works that established that NGX has a positive influence on economic performance are (Abayomi and Yakubu, 2022; Ayeni and Fanibuyan, 2022; Omimakinde and Otite, 2022; Ihenetu and Iwo, 2022; Ashamu and Soyebo, 2020; Ugbogbo and Aisien, 2019; Enorunwa, Ezuem and Nwani, 2019; Ogbeide, Daniel and Christopher, 2019; Abubakar, Omoshola and Aminu, 2016; Akinde, 2015; Amu, Nwezeaku and Akujuobi, 2015; Nathaniel, 2014; Osho, 2014; Okodua and Ewetan, 2013; Bashorun and Bakare–Areemu, 2013; Adenuga, 2010; Owolabi and Ajaji, 2013).

Specifically, Ashamu and Soyebo (2020), Ogbeide, Daniel and Christopher (2019), and Enorunwa, Ezuem and Nwana (2019) used capitalization ratio, all share index, value traded ratio and number of transactions in each of their works to examine the influence of stock market on economic advancement. While Ashamu and Soyebo applied ECM, the other two works used OLS. However, for Ugbogbo and Aisien (2019), Amu, Nwezeaku and Akujuobi (2016), and Owolabi and Ajayi (2013), each of them adopted only one indicator – market capitalization ratio in their respective studies. ECM was applied in the first work while OLS was used in the other two. Further, Akinde (2015), Abubakar, Omoshola and Aminu (2016), and Okudua and Ewetan (2013) employed capitalization ratio and value traded ratio in each of their works using ECM, VECM and ARDL respectively. More, Adenuga (2020) and Osho (2014) have each selected total shares traded, turnover ratio and capitalization ratio in their studies. Bashorun and Bakare (2013) employed market index, number of transactions and market capitalization with ECM in their investigation.

Studies that recorded positive and insignificant outcomes on economic performance include (Araoye, Ajayi and Aruwaji, 2018; Osakwe and Ananwude, 2017; Okere and Ndubuisi 2017; Brown and Nyeche, 2016; Ogunleye and Adeyemi, 2015; Duke and Nkamare, 2015; Afolabi, 2015; Adigwe, Nwanna and Ananwude, 2015; Ujunwa and Salami, 2010; Ewah, Esang and Bassey, 2009; Osinubi and Amaghionyeodiwe, 2003; Osinubi, 2003). In specifics, Araoye, Ajayi and Aruwaji (2018), Ogunleye and Adeyemi (2015), Okere and Ndubuisi (2017), and Ujunwa and Salami (2010), each in their different works, employed capitalization ratio, total shares traded ratio and turnover ratio. Whereas the first two works applied ECM, the third and

fourth works adopted ARDL and OLS in that order. Further, market capitalization and value traded ratio were selected by each of the following studies adopting OLS as a statistical measure (Brown and Nyeche, 2016; Ewah, Esang and Bassey, 2009; Osinubi, 2002; Adigwe, Nwanna and Ananwude, 2017).

Afolabi (2015), adopted capitalization ratio, value traded ratio, listed stocks and new issues and analyzed them with OLS between 1992 and 2011. Duke and Nkamare (2015) almost used the same indicators (capitalization ratio, all share index, volume of stocks and listed stocks with OLS as analytical technique from 1986 to 2005. Azubuike (2017) included the number of listed companies in his model, combining it with total value traded ratio and capitalization ratio. But his work failed to incorporate turnover ratio (a crucial indicator of liquidity) in the study. He applied OLS in the investigation between 1981-2011.

On the studies that showed negative and significant results on Nigeria's economic growth, Papoola, Ejemeyovwu, Aleje, et al. (2017) used market capitalization, value traded ratio and market index as proxies, and applied OLS to analyze the data. While Okoye, Modebe and Okorie (2016) adopted value traded ratio, market capitalization and turnover ratio in their study. They adopted VECM to evaluate the relationship.

However, the findings indicating negative and non-significant results were studies of Akpokerere and Okoroyibo (2020) who selected total value traded ratio and volume of trade data between 1986 and 2016 with OLS, and also of Ifeolowa and Motilewa (2015) that employed single indicator (value traded ratio) with OLS as analytical tool. In addition, Oluwatosin and Adekanye (2011) used market capitalization and listed companies in their analysis. This is another work (the second in this review) that have employed NLCs, however it left out total shares traded and turnover ratios in the estimation.

In Ghana, Abebresa, Kamasa and Pickson (2016) discovered that stock market showed no influence on the country's economic development using ARDL on time series between 1991 and 2011. They employed market ratio in addition to other controlling variables. Investigating whether Malaysian stock market contributed to its economic performance between 1978 and 2000, Chee, Zulkomain, Siony, and Venus (2005) established that the market (represented with market capitalization and turnover ratios) contributed positively. In India, Srinivasan and Karthigai (2014) applied ARDL on data covering 1991 to 2013 with variables such as turnover and capitalization ratios as proxies. They discovered that stock market promoted economic expansion. Zhang et al. 2016 with a cross section of 49 countries between 1998–2011 established that both bank and stock market risk acceptance capability induced long-run economic growth. They adopted GMM on a proxy of financial system risk tolerance aptitude.

Fethi and Katireioglu (2015) in their investigation in the United Kingdom context showed that stock market enhanced the progress of the economy. They used capitalization ratio indicator for the period of 1965 to 2011 applying ECM as economic tool. Also Koirala (2011) discovered that stock market contributed to the UK economic performance between 2001 and 2009. Capitalization ratio was the only market indicator. In USA, Adamopoulus and Vazakid (2013) adopted VECM to investigate the market impact on US economy covering 1970 to 2012, their findings indicated positive relationship. Contrary, Lei and Mishra (2015) in China investigated the effect of stock market on Chinese economy and concluded that Shanghai A share market did not affect the Chinese growth. They used ARDL to run the time series between 2007 and 2012.

Sattar, Ali, Rehman and Naeem (2018) adopting panel regression in the analysis of India, China and Pakistan markets discovered that stock market had an important contribution on the countries' economies. They employed capitalization ratio as the market indicator between 1993 and 2016. Similarly, Azam, Samsiad and Raji (2016) exploring four Asian countries with ARDL disclosed a significant contribution to the economy between 1991 and 2012. Also, Levine (2003) employing value traded and capitalization ratios, showed that stock market had a positive and significant effect on financial growth. Equally Levine and Zervos (1998) with capitalization, total value traded and turnover ratios had earlier revealed a similar finding. Both studies were conducted with OLS regression on panel data ranging from 1976 to 1993. Also

and equivalently, panel studies by Levine and Zervos (1996) and Beck and Levine (2001) established an evidence of a significant positive influence on economic advancement using OLS and Generalized Method Moments (GMM) respectively on cross country series. Market indicators of capitalization ratio, value traded and turnover ratios were selected in the investigations.

Further, Caporale, Rault and Sova (2014) analysed the stock markets of ten members of European nations between 1994 and 2007 with GMM. They established that stock market did not enhance economic situation of these nations. They used capitalization ratio as market indicator. Atje and Jovamovic (1993) showed that stock market induced the economic progress of a cross section of countries. They employed capitalization ratio between 1977 and 1988. But Enisan and Olufisayo (2009) discovered a positive but insignificant stock market impact on economic performance in the long term. They explored seven sub-Sahara African nations with ARDL using capitalization ratio. Similarly, in the works of Hamid and Singh (1992) with particular focus on emerging countries, it was revealed that these economies were yet to profit from stock market development. They explained that there was dearth of aggregate savings in these economies as investors had preferred portfolio investments that are always characterized with capital flight.

Furthermore, Kirikkaleli (2016) in his study of seven Balkan countries to determine the long run and causality relationship among the economic, financial, and political risks of these nations found that financial stability influenced their economic stability. He adopted panel co-integration, Granger and Dumitrescu-Hurlin causality tests. Camba, Jr. and Camba, (2020) investigated the impact of domestic credit and stock market liquidity on the economic growth of the Philippines for the period (1995- 2018). With ARDL and VECM methods, they discovered a long-term association between local loan, stock market liquidity and GDP growth. However, with regards to per capita GDP, the outcome showed that the domestic credit and stock market liquidity had no significant equilibrium restoration as a result of shock. In addition, Kalideen and Abdul Majeed (2021) explored the long run linkage between financial development (credit to the private sector, ratio of the gross fixed capital formation to GDP and consumer price index) and economic growth in Sri Lanka and established a positive and significant linkage between them. However, some of the independent variables like labor force and trade exhibited a significantly negative influence on the economic growth. The study was conducted with ARDL Also, Nyasha and Odhiambo 2017 analysed the effect of stock market and banks on Kenyan economic growth between 1980 and 2012 with ARDL method. The paper developed component indices to capture and reflect the indicators of the variables of interest. In their results, stock market added to the expansion of the economy whereas banks showed insignificant effect.

METHODOLOGY

We built our model on Levine and Zervos (1996) and Demirgue-Kunt and Levine (1996), both of whom have studied the linkage between stock market development and economic growth. The models hypothesized that stock market showed a positive and significant impact on the performance of economies. We have some slight modifications in our multivariate model specification to capture the peculiarities of the Nigerian economy. Apart from the incorporation of number of listed companies (NLCs) in the core variables, we also added trade openness and inflation to further contextualize our control variables. (MCR may not always be accurate as there can be risks of miscalculation which NLC is fortunately free from).

Methods: Autoregressive distributed lag model (ARDL) and structural break test frameworks are used to conduct our estimations. The structural break test was put forward by Zivot and Andrews (1992) and their three models are as follows.

$$\Delta y_t = c + \Delta y_{t-1} + \beta_t + \gamma DT_t + \sum_{j=i}^{k} d_j \Delta y_{t-j} + \xi_t \qquad 1$$

$$\Delta y_t = c + \Delta y_{t-1} + \beta_t + \theta DT_t + \sum_{j=i}^{k} d_j \Delta y_{t-j} + \xi_t \qquad\qquad 2$$

$$\Delta y_t = c + \Delta y_{t-1} + \beta_t + \theta DU_t + \gamma DT_t + \sum_{j=i}^{k} d_j \Delta y_{t-j} + \xi_t \qquad\qquad 3$$

Here: DU_t represents a binary variable for an average movement that can arise at each probable break-date whereas DT_t is comparable change of patterns in the variable.

The linear functional relationship of our research model can be represented thus:

$$RGDP = f(MCR + NLCs + TVR + TR + INFR + BD + OPN) \qquad\qquad 4$$

Where: RGDP represents real GDP, MCR is market capitalization ratio, NLC = number of listed companies, TVR = value traded ratio, TR = traded ratio, BD = banking sector development, INFR = inflation rate, OPN = trade openness.

The econometric estimation of the functional relationship can be specified thus:

$$DRGDP = \alpha_0 + \alpha_1 MCR + \alpha_2 NCL + \alpha_3 TVR + \alpha_4 TR + \alpha_5 INFR + \alpha_6 BD + \alpha_7 OPN + \xi_t \qquad 5$$

DRGDP represents change in real GDP, α_0 is the constant and α_1 to α_7 are the parameters of the repressors. ξ_t = a white noise phenomenon for capturing the effects of other exogenous factors on economic growth rate.

Our apriori expectation is that $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_6, \alpha_7 > 0$ and $\alpha_5 < 0$. $\qquad\qquad 6$

The autoregressive distributed lag model (ARDL) framework formulated by Peseran, Shin and Smith (2001) for the estimation is specified as:

$$\mathcal{Y}_t = \alpha + \sum_{i=1}^{p} \Upsilon_j \mathcal{Y}_{t-i} + \sum_{j=1}^{k} \sum_{i=0}^{q} X_{j,\ t-i} \ '\beta_{j,\ i} + \xi_t \qquad\qquad 7$$

Where $\mathcal{Y}_t$ is a vector; $\mathbf{X}_t$ is regressor which can be I(1) or I(0); $\boldsymbol{\beta}$ and Υ are parameters; α is the intercept; k, p,q are optimal lag orders, ξ_t is a vector of the residual.

Substituting our variables in ARDL we derive a model for both short and long term estimates.

$$\Delta RGDP_t = \alpha_{01} + \sum_{i=1}^{p} \alpha_{1i}\Delta RGDP_{t-I} + \sum_{i=1}^{q} \alpha_{2i}\Delta\ MCR_{t-i} + \sum_{i=1}^{q} \alpha_{3i}\Delta \ln NLC_{t-i} +$$

$$\sum_{i=1}^{q} \alpha_{4i}\Delta\ TVR_{t-i} + \sum_{i=1}^{q} \alpha_{5i}\Delta\ TR_{t-I} + \sum_{i=1}^{q} \alpha_{6i}\Delta INFR_{t-i} + \sum_{i=1}^{q} \alpha_{7i}\Delta BD_{t-i} +$$

$$\sum_{i=1}^{q} \alpha_{8i}\Delta OPN_{t-i} + \varpi_{1p}MCR_{t-i} + \varpi_{2p}LNNLC_{t-i} + \varpi_{3p}TVR_{t-i} + \varpi_{4p}TR_{t-i} + \varpi_{5p}INFR$$

$$_{t-i} + \varpi_{6p}BD_{t-i} + \varpi_{7p}OPN_{t\ -1} + \xi_t$$

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The coefficients of the short-term are $\alpha_{1-}\ \alpha_8$ while that of long term are $\varpi_{1-}\ \varpi_7$

Error correction model specification for determination of speed of adjustments

$$\Delta RGDP_t = \alpha_{01} + \sum_{i=1}^{p} \alpha_{1i}\Delta RGDP_{t-i} + \sum_{i=1}^{q} \alpha_{2i}\Delta MCR_{t-i} + \sum_{i=1}^{q} \alpha_{3i}\Delta \ln NLC_{t-i} + \sum_{i=1}^{q} \alpha_{4i}\Delta TVR_{t-i} + \sum_{i=1}^{q} \alpha_{5i}\Delta TR_{t-i}$$

$$+ \sum_{i=1}^{q} \alpha_{6i}\Delta INF_{t-i} + \sum_{i=1}^{q} \alpha_{7i}\Delta BD_{t-i} + \sum_{i=1}^{q} \alpha_{8i}\Delta OPN_{t-i} + \lambda ECT_{t-i} + \xi_t \qquad \qquad \text{---9}$$

The parameter λ measures the speed of restoration to equilibrium

With ARDL the problem of exogeneity is solved as the endogenous variable contains autoregressive of itself and lags of all the exogenous variables. ARDL has some descriptive advantages above other methods for determining co-integration: first, it does not strictly demand that variables of study must have the same order of integration. It means it can be adopted irrespective of the order of stationarity of the variables viz. order one, order zero, or even mixed. Second, it is good and appropriate for estimating samples with relatively small size. This is in contrast with Johnasen and Juselius (1990) co-integration technique. Third, it allows for adequate number of lags to determine the generating process of data from general-to-specific (Laurenceson and Chiai, 2003). Fourth, it can estimate both the short and long run co-integration.

Description and Justification of Variables.

Market Size: this indicates the capacity of markets to raise funds and spread risk. Its two proxies: MCR and NLC have their advantages and limitations. MCR as the most commonly used in the previous studies holds these advantages: first, it demonstrates the market's capacity to pool resources and spread risk; second, it shows the proportional ratio of the market size comparative with the economy. Third, it reveals the carrying retained earnings of firms and then signifies their growth prospects (Rajan and Zingales, 2003: Bekaert, Harvey and Lundbland, 2001; Levine and Zervos, 1998;). One of its limitations is its tendency to mislead investors to believe that the market is expanding whenever MCR is high; without recognizing that the high ratio can be as a result of rise in the share prices of few companies and not necessarily the ability to mobilize funds.

On its part, the number of listed companies (NLCs) which shows all the quoted firms at a particular time is another important indicator of market size. It is not affected by market instabilities (Bakaert, Harvey and Lundbland, 2001; Rajan and Zingales, 2003; Karolyl, 2004). Further, it cannot be affected by the probable miscalculation of GDP which is typical with underdeveloped economies. But it suffers from two shortcomings; first, it is affected by business reorganization. Second, it may lead to low ranking of the markets when dominated by few large-sized firms (Rajan and Zingales, 2003; Karolyl, 2004).

Market Liquidity: according to Levine (1997), market liquidity means the ability to trade on stock market instruments with ease and dispatch. Engle and Lange (1997) states that liquidity implies incurring less transaction cost on market securities. It indicates the possibility of disposing a huge amount of market instruments without sparking off large price changes. Some of the advantages of liquidity are: it makes financial products more appealing to stockholders as they can quickly buy or sell their assets. Second, it encourages and facilitates portfolio restructuring by investors. Third, it accords corporations continuous access to funds and further stimulates sustainable corporate growth through share floatation. Fourth, it engenders useful relationships between capital market and money market because stocks can serve as collateral for bank loans. Liquidity plays a complementary role to market size so as to get a full picture of market development. It helps to show the dynamism and robustness of the market. The five aspects of liquidity are depth, breath, tightness, immediacy and resiliency. Neither total value traded ratio nor turnover

ratio alone can sufficiently and clearly capture these dimensions hence the joint use of the two liquidity indicators in this study.

Value Traded Ratio: this is the value of transactions in the market proportionate to the gross domestic product; it can be measured by dividing the value of shares transacted with total gross domestic product. It has the ability to disclose the extent of liquidity in the market better than TR. However it has a limitation; since it is obtained by multiplying the quantity of equities traded with its corresponding market value, its total value can be increased even when there is no rise in the number of deals (Beck and Levine,2001).

Turnover Ratio, this expresses the value of transactions proportionate to size of the market. It is derived by dividing the total amount of shares exchanged with the market capitalization, hence it indicates the velocity and frequency of transactions. It rises correspondingly with the level of market expansion. Turnover ratio normally goes together with total value traded ratio. Its advantage is that it is free from the shortcomings of TVR. For instance, it is not tainted with deceptive illusion of provision of liquidity with mere rise in share prices (Levine and Zervos, 1998). When the value of TR is high it is an indication that the trading cost is low.

Banking Sector Development: according to World Bank (2007), African economies are largely dominated by banks which also play important role in economic growth. This makes it imperative to include banking sector development as a covariate for determining the link between market development and economic performance otherwise it can constitute an omitted variable. Even in advanced economies majority of works in this topic controlled for banking sector development (see Arestis, Demetriades and Luintei, 2001; Levine and Zervos, 1996, Levine, 2003). This variable is represented by bank loans to private business (Levine, Loayza and Beck, 2000; Beck and Levine, 2004).

Inflation Rate: according to Garcia and Liu (1999), inflation rate is crucial in determining economic growth. This explains the reason why a good number of studies adopted it in their control variables (Ericsson, Irons and Tryon, 2001; Gillman, Harris and Matyas, 2004; Corporal, Rault, Sova and Sova, 2014). When inflation is low, it encourages investors' participation in the economy thereby stimulating growth.

Trade Openness: this is another important factor for economic growth (Edward (1993). It helps in providing a broad choice of competitive products and services in a local economy (Romer 1994). According to Acemoglu, Johnson and Robinson (2002), trade openness assist in strengthening institutions with strong inclinations for protecting human rights which in turn helps to accelerate economic growth. Generally it shows the extent of openness of an economy. The following authors (see Osinubi 2002; Pan and Mishra, 2015; Levine and Zervos, 1998) have adopted this variable as one of the moderating variables in their studies.

RESULTS AND DISCUSSION

The study is conducted with annual data between 1980 to 2020 (41 annual observations). We sourced our data from the Central Bank of Nigeria (CBN) and Nigeria Exchange Group (NGX) publications.

Table 1: Descriptive Statistics

	BD	INFR	MCR	NLC	OPN	TR	TVR	RGDPG
Mean	11.29	18.46	7.83	163.87	29.36	6.16	0.80	3.55
Median	8.20	11.90	6.80	181.00	30.50	5.10	0.40	4.20
Std. dev	5.54	16.06	6.08	42.80	12.46	6.65	1.35	6.01
Skewness	0.72	1.84	1.36	-0.64	0.10	2.07	3.22	-0.23

kurtosis	1.72	5.57	6.07	1.94	2.39	9.26	13.46	4.94
JB Stat	6.37	34.48	28.84	4.70	0.69	96.44	257.85	6.87
JB Prob	0.04	0.00	0.00	0.09	0.70	0.00	0.00	0.03

Source: Author's Eviews computation

In the descriptive statistics in Table 1, the values of mean and median of the primary variables (RGDPR, MCR, TR and TVR) are nearly the same and thus display marginal dispersion. However, this is with an exclusion of NLCs. On standard deviation, apart from TVR, all the other variables present high values of deviation from the mean. On kurtosis, greater number of the variables (RGDPR, INF, MCR, TR and TVR) are leptokurtic indicating peaked distribution whereas the rest are platykurtic. Majority of the series reveal moderate and positive skewness with the exception of NLCs and RGDP. Further, greater number of the variables have skewed distribution; it is only OPN and NLCs whose probability values are larger than 0.05 that exhibit normality. Nonetheless, this may not affect the validity of the results (Brooks, 2008)

Table 2: Results of Zivot-Andrew Consistent Unit Root Test.

Variables	Zivot Andrews Stat	Critical value @ 5%	Order of Integration
BD	-6.21	-4.93	1(0)
INFR	-5.17	-4.93	1(0)
MCR	-5.80	-5.08	1(0)
DLNNLC	-5.46	-4.93	1(1)
OPN	-4.78	-4.42	1(0)
TR	-7.15	-5.23	1(0)
TVR	-9.20	-5.08	1(0)
RGDPG	-5.23	-5.08	1(0)

Source: Extracted from Eviews

Nigeria's economy has had many economic shocks and instabilities within our study time frame, thus it becomes needful to apply Zivot Andrew unit root test in Table 2 to ensure credible outcomes as it has capacity to capture and manage the economic jolts. Conventional Augmented Dickey Fuller and Philip Perron Tests which exhibit inadequate capabilities with structural breaks will erroneously accept the null hypothesis when it should be rejected. Our findings disclose that all the variables excluding NLC are stationary at levels. The NLC became stationary at order 1. Therefore with this mixture of I(1) and I(0) variables, ARDL model became apt for the regression analysis.

Table 3:

ARDL Long-Run Bounds Results

Test Statistic	Value	Significant	I(0)	I(1)
F-Statistic	3.6	5%	2.3	3.5

Lag Length Selection Criteria

LAG	LOGL	LR	FPE	AIC	SIC	HQ
0	-109.2215	NA	28.16461	6.16955	6.51430*	6.29221

1	-107.5166	2.60213	27.21438*	6.13245*	6.52030	6.27044*
2	-107.4826	0.05022	28.73444	6.18329	6.61423	6.33661
3	-106.5919	1.26568	29.02641	6.18904	6.66308	6.35770

Source: Extracted from EViews

Note: the lag with most number of asterisks (*) specifies the chosen lag order.

From the result in Table 3, we have strong evidence of co-integration between stock market development and economic growth rate. At 5% significance level, F-statistic (3.6) is higher than both values of lower bound I(0) and upper bound I(1). Further, this implies that although the two variables of interests might have diverged contemporaneously, however they will come together in the long run. In other words, the Nigerian Exchange possesses the prospect to induce a sustainable impact on the economy. Also in the Table 3 we determined the appropriate and optimum lag for the model. Through the various lag length criteria, viz. Schwarz Information criterion (SIC), Akaike's information criterion (AIC), the Hannan Quinn (HQ) information criterion and Final Prediction Error (FPE), Lag 1 is adopted because it has the highest number of asterisk (*).

Table 4: Short Run Regression, Error Correction and Diagnostic Results

| Short run results		
Variable	Coefficient	Prob.
D(RGDPG(-1))	0.2862	0.144
D(MCR(-1))	1.2291	0.0209
D(TVR(-1))	-6.1181	0.0313
D(TR(-1))	0.9169	0.0495
DLNNLC(-1)	-17.9318	0.2098
D(BD(-1))	3.4582	0.4608
D(INFR(-1))	4.2601	0.0001
D(OPN(-1))	2.681	0.2397
Error Correction Model		
ECM(-1)	-0.6027	0.0268
Goodness of Fit		
R2	0.61	
F-statistic	4.94	0.0005
Validity tests		
D-W stat	2.08	
B-G LM F-stat	.0.78	0.3829
Ramsey F-stat	0.17	0.6758
Ramsey T-stat	0.42	0.6758
Wald F-stat	4.28	0.0018

Source: Eviews

Having established an evidence that the NSE is cointegrated with the Nigeria's economy, we proceeded to establish the speed of adjustment (that is the lapse of time for return to equilibrium), short-run and diagnostic estimates in Table 4. The error correction term (ECM) is correctly signed and significant with

coefficient of -0.6027 and probability of 0.0268 respectively. It is important to remark that ECM needs to fall between 0 and 100 percent to make its interpretation more meaningful. Since our ECM is /.60/, this suggests that a shock to the model is totally adjusted at 60% per annum. With our annual data, it will therefore take 1 year and 7 months for the equilibrium to be restored, (it is calculated thus: 100/60 = 1.66). This is high and commendable.

In the short run, two out of the four principal variables have significant effect on the Nigeria's economic performance namely market capitalization and turnover ratios. The market capitalization contributed to economic progress by 1,2% (and this was in contrary to Algaeed, 2021), whereas turnover ratio influenced it by 0.9%, this aligns to our theoretical expectation. Conversely, TVR has a negative and significant 0.61 coefficient implying that it reduced economic growth by 0.6%. Further, the remaining principal variable, NLC, including two of the control variables (banking development and trade openness) showed non-significant effect on the growth of economy. However and surprisingly, inflation rate showed a positive significance.

Further, the R^2 of 61 percent is fairly high indicating that the model is good. Similarly, the F-stat with probability of 0.000 shows that, altogether, the regression is significant and can be used for valid analysis. For autocorrelation, we did not totally base our decision on the result from the Durbin Watson Test (DW) whose statistic value of 2.1 is suggestive of autocorrelation (as a general rule when DW is greater than 2, it is a signal of the presence of autocorrelation). Therefore, we went farther to employ Breusch-Godfrey (BG) serial correlation (a higher order test) to cross check the finding and discovered that the suspected autocorrelation is not credible. In other words, the BG p-values of 0.3829 (F- stat) and 0.2996 (Chi-squared stat) showed a convincing evidence of no autocorrelation.

Figure 4: CUSUM Graph
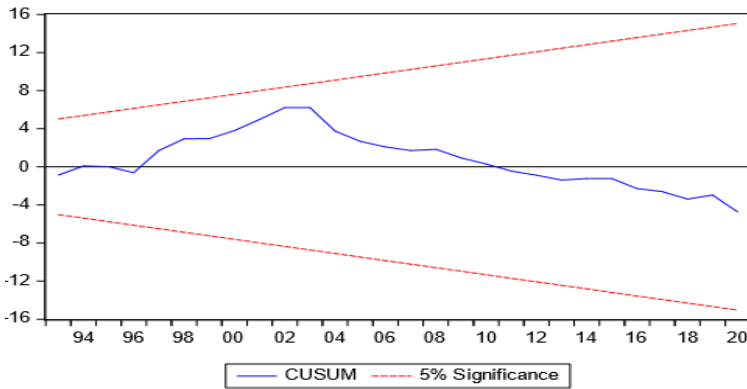

Figure 5: CUSUM of Squares Graph
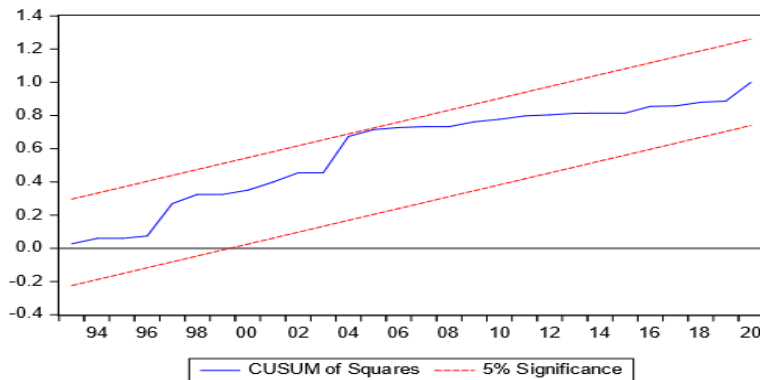
Source: Eviews

Furthermore, the model is free from error of specification. This is attested by the p-values of T and F

statistics of 0.6758. Further the Cumulative Sum of Recursive Residuals (CUSUM) and Squared Cumulative Sum of Recursive Residuals (CUSUM of SQUARES) as shown respectively in figures 4 and 5 indicate that the model is structurally stable. The blue lines which denotes model stability lie between the upper and lower bounds of each of the two graphs. The Wald test disclosed that all the regressors are important in describing the regressand. With p-value of 0.000, it means the predictor variables in the regression are individually and separately adding values to the model.

Figure 6: Normality Graph
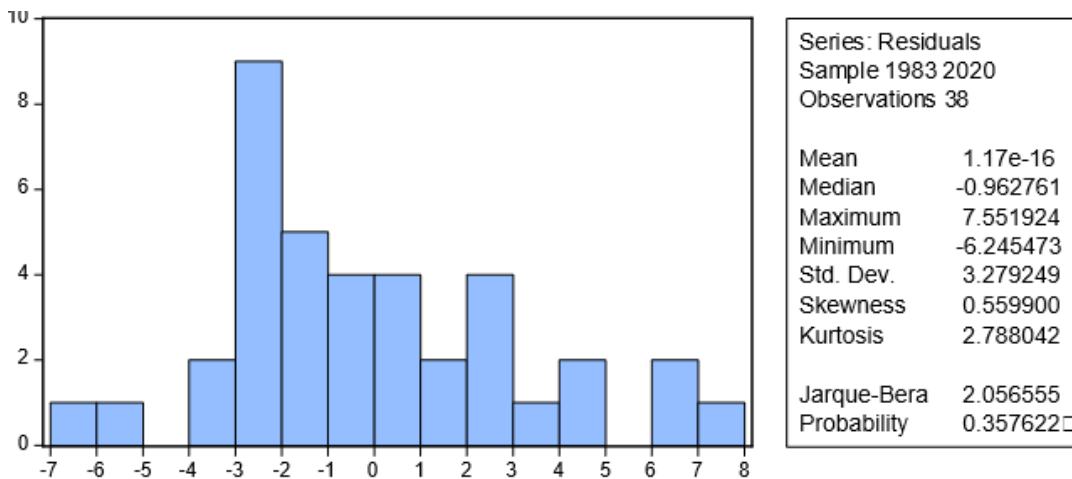
Additionally, in figure 6 we performed test of normality to confirm that the residuals are normally distributed. The finding reveals that the residual series of the datasets is normally distributed. The Jerque Bera p-value is 0.36 higher than the benchmark error of 0.05.

Table 5: ARDL Estimates for Long–Run Relationship

Variable	Coefficient	t-statistic	Prob
MCR	-0.911262	-0.945373	0.3532
TVR	1.402613	0.271020	0.7885
TR	0.899303	1.236606	0.2273
DLNNLC	-34.18742	-0.599179	0.5542
OPN	3.589176	0.736965	0.4677
BD	-4.160464	-0.801883	0.4299
INFR	1.547812	0.534477	0.5976

Source: Extracted EViews.

On long run relationship in Table 5, the glaring result here is that none of the indicators is significant, this implies that NGX had no sustainable influence on Nigeria's economic performance. This can be partly attributed to the fact that liquidity indicators are insignificant; Levine (1991) has emphasized the importance of market liquidity for long term influence. But here, though liquidity indicators (TVR and TR) revealed a positive association with economic growth, they are insignificant. This aligns with Enisan and Olufisayo (2009) who discovered positive but insignificant influence of stock market on long-term economic growth in sub-Sahara African. Further the positive and significant contributions of MCR and TR in the short run is not sustainable as the link between market size (MCR and NLCs) and economic growth became negative. Our finding is contrary to the works of Zhang et al. (2016), Durusu-Ciftci et al. (2017) and, Kalideen and Abdul Majeed, (2021) who established long run stock market impact on economic growth.

CONCLUSION

Sustainable economic growth is the main aspiration of any nation and stock market is very vital and contributory to this national objective. Scholars have argued in support of its positive role both in theoretical and empirical literature. In the short run in particular, there is increasing claim that stock market influences economic growth, however not quite much have been done on the long run relationship in Nigeria context. Therefore, for our work, we tried to look at the sustainble impact bringing in nearly all the vital indicators of stock market. Also a more dynamic Zivot Andrew unit test was applied. Our findings indicated that some of the a priori expectations were unrealized.

Some of the indicators showed positive outcomes with the Nigeria's economic development in the short and long term relationship. In the short-run, many of the variables with positive signs displayed significant influence on the economy, while for long term, they showed non-significant impact. This positive but insignificant relationship exhibited by both the total value of shares traded and turnover ratio in long term implies that the Nigerian stock market has the capacity to induce growth and therefore on the right track (partly, this is in consonance with the results of Levine & Zervos, 1998 on cross countries that market liquidity drives long run growth). It goes to explain that the market is still evolving to enable its indicators to produce significant effect on the economy, particularly in a sustainable manner. In other words, in the long term perspective, the NSE is still emerging to induce economic expansion. Specifically, we can assert that the prevailing market illiquidity, inadequate market infrastructure and the shallowness of the market when juxtaposed with the size of Nigerian economy are some of the grave limiting factors responsible for the market inability to impact on the economy. Many African countries experience these market development shortcomings; therefore these findings can somewhat be generalized and be very useful to them.

To achieve a long-lasting impact, the market needs to be deepened (liquidity) through enhancing its trading infrastructures and policies. These improve the speed and ease at which the shareholders execute their transactions in the market. It will also naturally reduce the cost of transaction. To further facilitate liquidity, innovative financial products like derivatives should be increasingly introduced on the exchange.

Furthermore, to expand and deepen the NGX, SEC needs to encourage and lure unquoted firms which have attained some certain level of capitalization to get listed on the exchange. This approach helped to get MTN Nigeria listed on the market, the authorities are also currently talking with AIRTEL mobile to get it quoted. Increased efforts should be further deployed to have more telecommunication firms listed in the market so as to increase the number of public businesses which will further broaden and deepen the market. In a similar vein, Government should come up with more laws requiring some non-public firms to float their shares on the Exchange. The Private Companies Conversion and Listing Bill (2013) at the legislature seeking unquoted firms with up to forty billion Naira financial threshold to go public is another strategic approach. Government needs to increase its efforts towards the enactment of the bill focusing more on telecommunication and oil sectors.

REFERENCES

1. Abayomi, Y. & Yakubu, U. (2022). Impact of the capital market on the Nigerian economic growth. *International Journal of Research and Innovation in Social Science*, 6(6), 13-19.
2. Abubakar, H., Omoshola, D. & Aminu, H. (2016). Financial market development and economic growth in Nigeria. evidence from VECM approach. *International Journal of Applied Economics*, 4(3), 1-13
3. Abebrese, G., Kamasa, K. & Pickson, R. (2016). Investigating the nexus between stock exchange and economic growth in Ghana. *British Journal of Economics, Finance and Management Sciences,* 11(1), 122 – 135.

4. Acemoglu, D., Johnson, S., & Robinson, J. (2002, April 14). *Reversal of fortune: Geography and institutions on the making of the modern world income distribution.* Retrieved from http:www.search.ebscohost.com.

5. Adamopoulos, A. & Vazakidis, A. (2013). Stock market development and economic growth: an empirical analysis for USA. *Retrieved from http:www.researchgate.net*

6. Adenuga, A. (2010). Stock market development indicators and economic growth in Nigeria (1990 – 2009): empirical investigations. *Central Bank of Nigeria*, 48(1), 33-70.

7. Adigwe, P., Nwanna, I. & Ananwude, A. (2015). Stock market and economic development in Nigeria: an empirical examination (1985-2014). *Journal of Policy and Development Studies*, 9(5), 134-154.

8. Adjasi, C. K.D., and B.N. Biekpe. (2005), Stock Market Returns and Exchange Rate Dynamics in Selected African Countries: A bivariate analysis, The African Finance Journal, July, Cape Town, South Africa

9. Afolabi, A. (2015). Impact of the Nigerian capital market on the economy. *European Journal of Accounting, Auditing and Finance Research,* 3(2), 88-96.

10. Agarwal, S. (2001, May 5). *Stock Market development and economic growth: Preliminary evidence from African countries*. Retrieved from http:www.publicpolicy.subr.edu.

11. Akinde, M. (2015). The dynamics of stock market performance fundamentals and economic growth in Nigeria: a causality investigation. *Journal of Financial Accounting*, 6(3),

12. Akpokerere, O. & Okoroyibo, E. (2020). Capital market performance as a panacea for economic growth in Nigeria. *International Business research,* 13(2), 1-12

13. Alexander, W. (1997). Inflation and economic growth: *Evidence from a growth equation Applied Economics, 29, 233 -238.*

14. Allen, F. (1993). Strategic management and financial markets. *Strategicc Management Journal, 14(2), 11-22*

15. Al-Yousif, Y. (2012), Financial development and economic growth: Another look at the evidence from developing countries. *Review of Financial Economics,* 11, 131-150.

16. Amu, C., Nwezeaku, A. & Akujuobi, A. (2015). Impact of capital market growth on economic growth and development in Nigeria. *American Journal of Marketing Research*, 1(3), 93-98.

17. Ananwude, A. & Osakwe, C. (2017). Stock market development and economic growth in Nigeria: a camaraderie reconnaissance. *Research Journal of Economics,* 1(3), 1-6.

18. Araoye, F., Ajayi, E. & Aruwaji, A. (2018). The impact of stock market development on economic growth in Nigeria. *Journal of Business and African Economy*, 4(1), 1-15

19. Arestis, P., Demetriades, P., & Luintel, K. (2001). Financial development and economic growth: The role of stock markets. *Journal of Money, Credit and Banking,* 33 (2), 16-41.

20. Arestis, P., & Mariscal, I. (1999). Unit roots and structural breaks in OECD unemployment. Economics Letters, 65 (2), 149 – 156.

21. Ashamu, S. & Soyebo, Y. (2020). Stock market activities and economic growth in Nigeria: a co-integration approach. *American Economic & Social Review,* 6(1), 1-7.

22. Atje, R. & Jovanovic, B. (1993). Stock markets and development. *European Economic Review*, 37, 632-640.

23. Ayeni, E. & Fanibuyan, O. (2022). The dynamics of uncertainty, macroeconomic variables, and capital market performance: A case study of Nigeria. Research in Globalization. *https://doi.org/10.1016/j.resglo.2022.100107*.

24. Azimi M. (2022). Assessing the asymmetric effects of capital and money markets on economic growth in china. *Heliyon 8 (2022).*

25. Azubuike, A. (2017). Impact of the Nigerian Stock Exchange on economic growth. *MPRA*, 75984, 1-8.

26. Basher, S. & Westerlund, J. (2009). Panel cointegration and the monetary exchange rate model. Economic Modelling, 26 (2), 506 – 513.

27. Bekaert, G., Harvey, C., & Lundblad, C. (2001). Does financial liberalization spur growth? *The National Bureau of Economic Research,* 8245, 1-66.

28. Bashorun, O. & Bakare–Aremu, T. (2013). Capital market development and economic growth; evidence from Nigeria. *International Journal of Humanities and Social Science Invention,* 2(12), 1-13.

29. Beck, T., Levine, R., & Loayza, N. (2000). Finance and sources of growth. *Journal of Financial Economics,* 58, 261-300.

30. Beck, T. & Levine, R. (2001). Stock markets, Banks, and growth: correlation or causality. *Retrieved from https:www.researchgate.net.*

31. Beck, T. & Levine, R. (2002). Industry growth and capital allocation: Does having a market- or bank-based system matter? *NBER Working Papers 8982, National Bureau of Economic Research, Inc.*

32. Beck, T. & Levine, R. (2003). Legal institutions and financial development. *NBER Working Papers 10126, National Bureau of Economic Research, Inc.*

33. Beck, T. & Levine, R. (2004). Stock market, banks and growth: panel evidence. *Journal of Banking and Finance*, 28(3), 423-442.

34. Bencivenga, V. & Smith, B. (1991). Financial intermediation and endogenous growth. *Review of Economics Studies Limited, 58* (2), 195-209.

35. Bencivenga, V., Smith, B., & Starr, R. (1996). Equity markets, transactions costs, and capital accumulation: An illustration. *The World Bank Economic Review,* 10(2), 241-265.

36. Bhinde, A. (1993). The hidden costs of stock market liquidity. *Journal of Financial Economics*, 34, 1-51.

37. Boca, G.N. (2011, August 15). *Financial development, institutions and economic growth; An empirical evidence.* Retrieved from http: diva.portal.org.

38. Borensztain, E., De-Gregoro, J. & Lee, J. (1998). How does foreign Investment affect growth? *Journal of International Economics*, 45

39. Brooks, C. (2008). Introductory Econometrics for Finance. New York, USA: Cambridge University Press

40. Brown, E. & Nyeche, E. (2016). The imperative of stock market development on economic growth in Nigeria: the endogenous growth model. *Business and Economics Journal,* 7(1), 1-5.

41. Calamanti, A. (1983). The Securities Market and Underdevelopment. Milan: Giuffre.

42. Capasso, S. (2006, June 7). Stock market development and economic growth: A matter of information dynamics. Retrieved from https://www.researchgate.net/publication

43. Caporale, G., Rault, C., Sova, R. & Sova, A. (2014). Financial development and economic growth: evidence from ten new EU members. Discussion papers 8397, Institute for the Study of Labour.

44. Chee, K., Zulkormain, Y., Siong, H. & Venus, L. (2005). Financial development and economic growth in Malaysia: the stock market perspective. *Retrieved from http://econwparepec.org*

45. Christopoulos, D. & Tsionas, E. (2004). Financial development and economic growth: Evidence from panel unit root and cointegration tests. *Journal of Development Economics, 73*(1), 55– 74.

46. Devereux, M.,& Smith, G. (1994). International risk sharing and economic growth, *International Economic Review, 35, 535–550.*

47. Demirgue–Kunt, A. &Levine, R. (1996). Stock markets, corporate fiancé, and economic growth an overview. *World Bank Economic Review, 10(2), 223 – 239.*

48. Dritsaki, C. & Dritsaki – Bargiota (2005). The causal relationship between stock, credit market and economic development: a empirical evidence for Greece. *Economic change and Restructuring, 38, 113 – 127.*

49. Duke, S. & Nkamare, S. (2015). Impact of capital market on the development of the Nigerian *Archives of Business Research,* 3(4), 124-151.

50. Durusu-Ciftci, D., Ispir, M. & Yetkiner, H. (2017). Financial development and economic1 growth: Some theory and more evidence. *Journal of Policy Modeling, 39(2), 290–306.*

51. Edward, S. (1993). Openness, trade liberalization and growth in developing countries. *Journal of Economic Literature, 31(3), 1358-1393.*

52. El-Wassal, K. (2005). Understanding the growth in emerging stock Markets. *Journal of Emerging Market Finance,* 4(3), 227-261.

53. El-Wassal, K. (2013). The development of stock markets: In search of theory. *International Journal of Economics and Financial Issues,*

3(3), 606-624.

54. Enisan, A. & Olufisayo, A. (2009). Stock market development and economic growth: evidence from seven sub-Sahara African countries. *Journal of Economics and Business*, 61(2), 162-171.

55. Engle, R. & Lang, J. (1997). Measuring, forecasting and explaining time varying liquidity in the stock market. *National Bureau of Economics Research Working Paper,* 6129, 1-24.

56. Enoruwa, K., Ezuem, M. & Nwani, O. (2019). Capital market performance indicators and economic growth in Nigeria. *International Journal of Research and Innovation in Social Science*, III (II), 435-444.

57. Ericsson, N., Irons, J. & Tryon, R. (2001). Output and Inflation in the long Run. *Journal of Applied Economics 16, 241 – 253.*

58. Ezeibekwe, O. (2021). Stock market development and economic growth in Nigeria: Evidence from vector error correction model. *The Journal of Development Areas, 55(4), 103-118.*

59. Ewah, S., Essang, A. & Bassey, J. (2009). Appraisal of capital market efficiency on economic growth in Nigeria. *International Journal of Business and Management*, 4(12),219-225.

60. Fethi, S. & Katircioglu, S. (2015). The role of the financial sector in the UK economy: evidence from a seasonal co-integration analysis. *Journal of Economic Research*, 28(1), 717-737.

61. Fry, M. (1988). Money, Interest and Banking in Economic Development. Baltimore: Johns Hopskins University Press.

62. Camba Jr, A. & Camba, A. (2020). The dynamic relationship of domestic credit and stock market liquidity on the economic growth of the Philippines. The Journal of Asian Finance, Economics, and Business, 7(1), 37- 46

63. Garcia, F. & Liu, L. (1999). Macroeconomic Determination of stock market Development. *Journal of Applied Economics, 2(1), 29 – 59.*

64. Ghirmay, T. (2004). Financial development and economic growth in sub-Saharan African countries: Evidence from time series analysis. Africa Development Review, 16(3), 415-548.

65. Gillman, M., Herris, M. & Matyas, L. (2004). Inflation and Growth Explaining a negative *Empirical Economics, 29, 149 – 167.*

66. Goldsmith, R. (1969). Financial Structure and Development. Yale University Press, New Haven Connecticut.

67. Greenwood, J., & Smith, B. (1996). Financial markets development, and the development of financial markets. *Journal of Economic Dynamics and Control,* 21 (1), 145-181.

68. Greenwood, J. and Smith, B. (1997). Financial markets in development, and the development of financial markets. *Journal of Economics Dynamics, 21(1), 145-181.*

69. Gujarati, D. (2006). Basic Econometrics. New Delhi, India: Tata Mc-Graw Hill.

70. Harvie, C., Pahlavani, M. & Saleh, A. (2006). Identifying structural breaks in the Lebanese economy 1970-2003: an application of the Zivot and Andrews test. Middle East Business and Economic Review, 18 (1), 18-33.

71. Hamid, J. & Singh, A. (1992). Corporate financial structures in developing countries. *International Financial Corporation Technical Paper*.

72. Holmstrom, B., & Tirole, J. (1993). Market liquidity and performance monitoring. *Journal of Political Economy,* 101(4), 678-709.

73. Ifeoluwa, I. & Motilewa, B. (2015). Stock market liquidity and economic growth in Nigeria. *Journal of Economics and International Business Management*, 3(6), 14-38.

74. Ihenetu, H., & Iwo, R. S. (2022). Capital market and economic growth in Nigeria. *Global Journal of Research in Business Management, 2(1), 36-41.*

75. Jensen, M. & Murphy, K. (1990). Performance pay and top-management incentives. *Journal of Political Economy*, 98(2), 225-264.

76. Johansen, S. & Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration approach with applications to the demand for money. Oxford Bulletin of Economics and Statistics, 52, 169 – 210.

77. Karolyi, G. (2004). The role of American depository receipts in the development of emerging equity

markets. *Review of Economics and Statistics,* 86, 670-690.

78. Khan, A. (2000). Finance and growth nexus. *Business Review,* 3-14.

79. King, R. & Levine, R. (1993). Finance and growth: Schumpeter Might be right. *Quarterly Journal of Economics, 108(3), 717 – 737.*

80. Kirikkaleli, D. (2016). Interlinkage between economic, financial, and political risks in the Balkan countries: evidence from a panel cointegration. *Eastern Eur Econ,54(3), 208–227*

81. Koirala, I. (2011). The effect of stock market development on economic growth: an empirical analysis of UK. *Retrieved from https://ssrn.com.*

82. Kyle, A. (1984). "Market Structure, Information, Futures Markets, and Price Formation." In International Agricultural Trade, 45-64. Colorado: Westview Press.

83. Laffont, J. & Tirole, J. (1988). The dynamics of incentive contracts. *Econometrica, 56(5),* **1153**-1175

84. Laurenceson, J. & Chiai, J. (2003). Financial Reform and Economic Development in China. Chestenham, UK; Edward Elgar.

85. Lei, P. & Mishra, V. (2015). Stock market development and economic growth: evidence from *Monash Working Papers* 16-16, 1-33.

86. Levine, R. (1991). Stock Markets, growth and tax policy. *Journal of Finance*, 46(4), 1445 – 1465.

87. Levine, R. & Zervos, S. (1996). Stock market development and long-run growth. *The World Bank Economic Review*, 10(2), 323-339

88. Levine R. (1997). Financial development and economic growth: views and agenda. *Journal of Economic Literature*, 35, 688 – 726.

89. Levine, R. & Zervos, S. (1998). Stock markets, banks and economic growth. *American Economic Review*, 88(3), 537-558.

90. Levine, R., Loayza, U. & Beck, T. (2000). Financial intermediation and growth causality and *Journal of Monetary Economics, 46, 31 – 77.*

91. Levine, R. & Renelt, D. (2002). A sensitivity analysis of cross country growth repressions. *American Economic Review, 82(4), 942 – 963.*

92. Levine, R. (2003). Stock market liquidity and economic growth: theory and evidence. *Retrieved from https://www.springer.com*

93. Magnusson, M & Wydick, B. (2002). How Efficient are Africa's Emerging Stock Markets? Journal of Development Studies, 38(4),141-156.

94. Marques, L., Marques, A. & Fuinhas, J. (2013). Does the stock market cause economic growth? Portuguese evidence of economic regime change. *Economic Modelling, 32 ,316-324.*

95. Mayer, C. (1988). New issues in corporate finance. *European Economic Review,* 32(5), 1187-1189.

96. Mckinnon, R. (1973). Money and Capital in Economic Development. Washington D.C., USA: The Brookings Institution.

97. Mollaahmetoğlu, E., and Akçalı, B. Y. 2019. The Missing-Link between Financial Development and Economic Growth: Financial Innovation. *Procedia Computer Science, vol. 158, pp.696–704.*

98. Nathaniel, E. (2014). Stock prices, capital market development and Nigeria's economic *Economics*.

99. Niranjara, S. (2015). Stock market development and economic growth in Sri Lsanka. *Global Journal of Management and Business Research,* 15(8), 38-44.

100. Nkemgha, G., Nchofoung, T. & Sundjo, F. (2023). Financial development and human capital thresholds for the infrastructure development-industrialization nexus in Africa. *https://doi.org/10.1016/j.cities.2022.104108.*

101. Nguyen, Q. H. (2019). Growth model with financial deepening and productivity heterogeneity. *The Japanese Economic Review, 70(1), 123-140.*

102. Nyasha, S. & Odhiambo, N. (2017). Banks, stock market development and economic growth in Kenya: an empirical investigation. *Journal of African Business,18(1):1-23.*

103. Obstfeld, M. (1994). Risk-taking, global diversification and growth. *American Economic Review, 84, 1310–1329*

104. Ogbeide, K., Daniel, M. & Christopher, O. (2019). Capital Market Performance Indicators and Economic Growth in Nigeria. *International Journal of Research and Innovation in Social Science III*

(II), 435 -444.

105. Ogunleye, E. & Adeyemi, P. (2015). The impact of stock market development on economic growth in Nigeria. *Journal of Economics and sustainable Development,* 6(23), 21-29.

106. Okere, K. & Ndubuisi, P. (2017). The role of stock market development on economic growth in OPEC countries; does oil price movement matter? Fresh evidence from Nigeria. *Asian Journal of Economic Modeling*, 5(2), 194-207.

107. Okodua, H. & Ewetan, O. (2013). Stock market performance and sustainable economic growth in Nigeria; a bounds testing co-integration approach. *Journal of Sustainable Development,* 6(8), 84-92.

108. Okoye, I., Modebe, M. & Okorie, U. (2016). Capital market development and economic growth – the case of Nigeria. *Retrieved from http.www.covenantuniversity.edu.ng.*

109. Olusegun, O., Oluwatoyin, M. & Fagbeminiyi, F. (2011). Nigerian Stock Exchange and economic development. *Journal of Manager,* 7(14), 14-24.

110. Oluwatosin, E., Adekanye, T. & Fagbeminiyi, F. (2011). Nigerian Stock Exchange and economic development. *Journal of Manager*, 7(14), 14-24.

111. Omimakinde, J. & Otite, M.(2022). Effect of capital market reforms on economic growth of IOSR Journal of Business and Management, 24(6), 48-54.

112. Osakwe, C. & Ananwude, A. (2017). Stock market development and economic growth: a comparative evidence from two emerging economies in African - Nigeria and South Africa. *Archives of Current Research International*, 11(1), 1-15.

113. Osho, A. (2014). The role of stock market on Nigeria's economic development. *International Journal of Scientific and Research Publications*, 4(4).

114. Osinubi, T. (2002). Does stock market promote economic growth in Nigeria? *Retrieved from http:www.sta.uwi.edu*

115. Osinubi, T. & Amaghionyeodiwe, I. (2003). Stock market development and long-run growth in Nigeria. *Journal of African Business,* 4(3), 103-129.

116. Pradhan, R., Arvin M., Nair, M. & Bennett, S. (2020). Unveiling the causal relationships among banking competition, stock and insurance market development, and economic growth in Europe. *Structural Change and Economic Dynamics. 55, 74-87.*

117. Pradhan, R. (2018). Development of stock market and economic growth: the G-20 evidence .*Eurasian Economic Review, 8, 161–18*

118. Pradhan, R., Arvin, M., Bahmani, S., Hall, J, & Norman, N. (2017). Finance and growth: Evidence from the ARF countries. *The Quarterly Review of Economics and Finance, 66*, 136–148.

119. Pagano, M. (1993). Financial markets and growth: An overview. *Financial Markets and the Macroeconomy 37 (2-3), 613-622.*

120. Papoola, O., Ejemeyovwi, O., Alege, O., Adu, O. & Onabore, A. (2017). Stock market and economic growth in Nigeria. *International Journal of English Literature and Social Sciences,* 2(6), 97-106.

121. Pesaran, M., Shin, Y. & Smith, R. (2001). Bounds testing approaches to the, analysis of level *Journal of Appl. Economic 16, 289 – 326.*

122. Rajan, R. & Zingales, L. (2003). The great reversals: The politics of financial development in the 20th *Journal of Financial Economics,* 69,5-50.

123. Rateb, M. (2005, June 12). *A theoretical and empirical study of stock market development economic reform and economic growth: a case study of arab countries.* Retrieved from https://researchdirect.edu.au

124. Romer, P. (1994). The origins of endogenous growth. *The Journal of Economic Perspectives ,8(1), 3–22.*

125. Rousseau, P. & Wachtel, P. (2000). Equity markets and growth: Cross-country evidence on timing and outcome 1980-1995. *Journal of Banking and Finance,* 24(7), 1933-1957.

126. Sattar, A., Ali, M., Rehman, M. & Naeem, S. (2018). The impact of stock market development on economic growth: a panel study in the economies of Pakistan, India and China. *Autin Journal of Business Administration and Management,*

2(1), 1-6.

127. Shahbaz, M., Ahmed, N. & Ali, L. (2008). Stock market development and economic growth: Ardl causality in Pakistan. *International Research Journal of Finance and Economics, 14(1), 182-195.*

128. Sharp, W., Alexander, G. & Bailley, J. (1999). Investments. New Jersey, USA: Prentice Hall.

129. Shaw, E. (1973). Financial Deepening in Economic Development. Washington D.C., USA: Brookins Institution.

130. Shleifer, A. & Vishny, R. (1986). Large shareholders and corporate control. *Journal of political economy*, 94(3), 461-488.

131. Schumpeter, J. (1912). Theorie der Wirtschaftlichen Entwicklung. Leipzig: Dunker & Humblot, [The Theory of Economic Development 1912, translated by Redvers Opie. Cambridge, MA: Harvard University Press, 1934.]

132. Singh, A. (1999). Should Africa promote stock market capitalism? *Journal of International Development, 343-365.*

133. Srinivasan, P. & Karthigai, P. (2014). Stock market development and economic growth in India: an empirical analysis. *Retrieved from http:www.inpra.ub.uni-muenchen.*

134. Stein, J. (1988). Takeover Threats and Managerial Myopia. *Journal of Political Economy,* 96 (1), 61-80.

135. Stiglitz, J. (1985) Credit markets and the control of capital. *Journal of money, credit, banking, 17(2),* 133-152

136. Stiglitz, J. (1994). The Role of The State in Financial Markets. Washington, D.C.: World Bank Group.

137. Udofia, M., Onwioduokit, E. & Effiong, U. (2022). The role of capital market on industrial development in Nigeria. *Asian Basic and Applied Research Journal, 6(2), 9-18.*

138. Ugbogbo, S. & Aisien, L. (2019). Capital market development and economic growth in *International Journal of Development and Management Review*, 14(1), 14-24

139. Ujunwa, A. & Salami, O. (2010). Stock market development and economic growth: evidence from Nigeria. *European Journal of Economics, Finance and Administrative Sciences*, 25, 44-54. World Bank (2007). Making finance work for Africa. *Retrieved from http:www.worldbank.org.*

140. World Bank (2007, April 14). *Making finance work for Africa.* Retrieved from http:www.worldbank.org

141. XU, Z. (2000). Financial development investment and economic growth. *Economic Inquiry, 38(7), 331 – 344.*

142. Yartey, C. and Adjasi, C. (2007). Stock market development in Sub-Sahara Africa: Critical issues as challenges. *IMF Working Paper, WP/07/32.*

143. Zhang, L., Zhang, S. & Tao, N. (2016). Financial system risk tolerance capacity and economic growth: evidence from a cross- country analysis. *Glob Econ Rev, 45(2), 97–115.*