

Short and Long Run Relationship Between Value of Total Stock Exchange Transaction and Key Macroeconomic Variables in Nigeria. A Cointegration Approach

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Abstract: The study analyzed the short run and long run influenced of some macroeconomic variables on total stock transactions in the Nigerian stock exchange market. Unit root test (Augmented Dicker Fuller test) conducted on the data shows that all variables are integrated of order one. The short-run and long-run elasticities of total stock transaction with respect to some key macro-economic variables were determined using the techniques of co-integration and error correction estimation. The empirical results reveal that coefficients of industrial capacity utilization rate, domestic savings, external reserves, total value of import and lending rate of commercial Banks are significant in the long run. Whereas the coefficients of external debt, domestic savings, total import, per capita real GDP; industrial capacity utilization and index of agricultural production were significant in the short run. The result calls for a policy package that should focused on stabilization of the real and monetary policy variables in the Nigerian economy. Also, institutional and operational reforms in the country's capital market are inevitable in a bit to increase the stock exchange market's efficiency.

Key Words: Stock market, macroeconomic, total stock, short run, long run.

1. Introduction

Stock market transaction plays a vital role in stimulating economic activities in most developing economies through mobilization of fund to the real sector and in supporting government capital and deficit expenditures (Okereke, 2010). Basically stock exchange market serves as a channel through which surplus funds are moved from lender-savers to borrower-spenders who have shortage of funds (Black, 1988). It provides a platform for individuals, governments, firms and organizations to trade and invest in savings through the purchase of shares (Sule and Momoh, 2009). The Nigerian Stock Exchange was established in 1960 as the Lagos stock exchange; and later in December 1977 it became, The Nigerian Stock Exchange; with branches established in some of the major commercial cities of the country. It is a private, non-profit making organization, limited by guarantee and is incorporated through the inspiration and support of businessmen and the federal government of Nigeria.

Stock exchange market in Nigeria is seen as an emerging financial super power that is capable of spurring economic development and as a good complement to other financial institutions (Capasso, 2003 and NSE, 2008). A well developed stock market is expected to accelerate economic growth, by providing a boost to domestic savings and increasing the quality of investments (Singh, 1997). Stock markets therefore are able to optimistically influence economic growth through effective mobilization of savings amongst individuals, promoting capital formation, creating wider avenues of investment, providing financial resources for public and private purpose as well as fund for development purposes. In addition, it promotes corporate control, by improving financial discipline, which is expected to provide the best guarantee of efficiency in the use of assets.

Given the multifarious roles played by the stock market, its efficiency can only be strengthened by sound economic policies, strong financial resources and institutions, political stability and increasing self reliance economies (Singh, 1999, NSE, 2008). The Nigeria's economy is an emerging economy that is characterized by fluctuations in the key macroeconomic variables and this plays a major role in shaping the activities in the stock exchange market. Since the stock market is an integral part of the economic system, therefore understanding the relationship among individual components is a prerequisite to achieving the much needed economic development. Such knowledge will ensure that only significant policy variables are used to formulate intervention policy in areas of high priority in the economy such as the stock exchange market. Therefore, the study specifically sought to determine the statistical relationship between the value of the total stock transactions in the Nigerian stock exchange and some key macro economic variables.

2. Literature Review

It is believed that government policies and macroeconomic events have large influence on general economic activities including the stock market transaction. Bencivenga et al., (1996) equally maintain that the level of economic activities is affected by the stock market through its liquidity-creating ability. Chen *et al.* (1986) in the US show that changes in risk premiums, industrial production, and changes in the term structure positively correlate with the expected stock returns, while both the anticipated and unanticipated inflation rates negatively relate to the expected stock returns. Hamao (1988) shows that inflation rate significantly influenced Japanese stock returns. Mukherjee and Naka (1995) found that exchange rate positively relates to stock prices in Japan and Indonesia. On the contrary, Soenen and Hennigar (1988) reported that US dollar effective exchange rate negatively affect US stock market index during 1980 to 1986. Atje and Jovanovic (1993) and Levine and Zervos (1996) found a significant association between economic growth and the value of stock market for over forty countries in the period 1976 to 1993. Nishat and Shaheen, (2004) in Pakistan found a significant negative long-term equilibrium relationship between inflation and Stock Exchange Index. Industrial production however exhibited a positive influence on the stock exchange. Schwert (1981) in USA confirmed a negative relationship between stock prices and inflation.

Ologunde et al., (2006) in Nigeria found a positive relationship between the prevailing interest rate and stock market capitalization rate; and a negative correlation between the Government development stock rate and stock market capitalization rate. Kyereboah and Agyire (2008) in Ghana found that the lending and inflation rates affect stock market performance. Mahmudul and Gazi (2009) discovered that interest rate exerts significant negative relationship with share price for markets in Australia, Bangladesh, Canada, Chile, Colombia, Germany, Italy, Jamaica, Japan, Malaysia, Mexico, Philippine, South Africa, Spain, and Venezuela. Wongbangpo and Sharma (2002) reported a negative long term linkage between stock prices and interest rates in Philippines, Singapore and Thailand. However, a positive relation was detected in Indonesia and Malaysia.

Khrawish1 et al., (2010) in Jordan shows a significant and positive relationship between government prevailing interest rate and stock market capitalization rate. The study also reveals that Government development stock rate exerts negative influence on stock market capitalization rate and the prevailing interest rate. Hsing (2011) in Hungary discovered that stock market index has a positive relationship with real GDP, the ratio of the government debt to GDP, the nominal effective exchange rate and the German stock market index, a negative relationship with the real interest rate, the expected inflation rate and the government bond yield in the euro area, and a quadratic relationship with real M₂ money supply. Rahman et al., (2009) explores the interactions between selected macroeconomic variables and stock prices in Malaysia. The result shows that changes in Malaysian stock market index have stronger dynamic interaction with reserves and industrial production index as compared to money supply, interest rate, and exchange rate. Lijuan and Xu (2010) show that China's stock prices are significantly affected by exchange rates, interest rates, macroeconomic prosperity index, consumer's confidence index and the corporate goods price index.

Maysami et al., (2004) established that the Singapore’s stock market is significantly affected by changes in the short and long-term interest rates, industrial production, price levels, exchange rate and money supply.

3. Methodology

Study area and data source: The study was conducted in Nigeria; the country is situated on the Gulf of Guinea in the sub Saharan Africa. Data used in the study were from the Nigerian stock exchange annual reports account of various issues and the Central Bank of Nigeria (CBN); National Bureau of Statistics; Federal Ministry of Finance and Federal Ministry of Agriculture and Rural Development publications. The data covered the period 1970 to 2010.

4. Analytical Techniques

The cointegration and error correction models based on Engle and Granger two-step technique were used in the study. The total stock equation is specified as follows.

$$STCK_t = \gamma_0 + \gamma_1 TIM_t + \gamma_2 EXR_t + \gamma_3 PGD_t + \gamma_4 ICUR_t + \gamma_5 DSA_t + \gamma_6 EXDT_t + \gamma_7 INTER_t + \gamma_8 IAGP_t + \gamma_9 ERS_t + E_t \dots \dots \dots (1)$$

Where all variables are expressed in natural logarithm.

STCK_t = value of total stock in the Nigerian stock exchange market (₦m)

TIM_t = real value of total imports (₦m);

EXR_t = nominal exchange rate of ₦/\$

ICUR_t = industry’s capacity utilization rate (%);

DSAV_t = domestic saving as a ratio of GDP

EXDT_t = external debt as a ratio of GDP;

INTER_t = interest rate (lending rate) (%)

IAGP_t = index of agricultural production;

EXS_t = external reserves as a ratio of GDP

PGDP_t = real per capita GDP (₦m/person)

U_t = error term and U_t ~ IID (0, δ²_U).

5. Result and Discussion

Unit root test for variables used in the analysis

To ascertain the stationarity of the variables specified in the model, the standard Augmented Dickey – Fuller tests were performed. Test statistics for each variable in levels and first differences are presented in Tables 1. The test result reveals that at levels, all variables (in log) used in this study are non-stationary; but stationary at first difference and are therefore integrated of order 1 {i.e.1 (1)}. The result implies that the time series should be tested for the existence of a cointegration among variables.

Table 1: Augmented Dicker Fuller Unit Test

Variables	Level	First difference	Order of integration
LnTotal stock	-1.564	-7.538***	1(1)
LnSavings	-1.673	-5.651***	1(1)
LnExt. Debt	-0.988	-5.993***	1(1)
LnPCRGDP	-1.962	-6.038***	1(1)
LnICUR	-1.510	-4.912***	1(1)
LnExchange rate	-2.071	-5.055***	1(1)
LnExt. Reserves	-2.454	-6.472***	1(1)
LnValue of import	-1.966	-6.943***	1(1)
LnInterest R	-1.907	-8.717***	1(1)
LnIndex of Agric. P	-2.744	-6.504***	1(1)
Residual	-4.328***	-	1(0)

Note: At level, critical value at 5% = -3.52, and at 1% = - 4.20; at first difference, critical value at 5% = -3.53 and at 1% = -4.21. Asterisk *** represents 1% significance level. Variables are as defined in equation (1) These tests were performed by including drift and a deterministic trend in the regressions.

6. Cointegration Test

The concept of cointegration as developed by Granger (1981) is based on the determination of the long-run relationships among non-stationary time series. Hence, prior to applying the standard procedure of the cointegration tests to any series, one technical condition must be fully satisfied. That is for the series in consideration, the variables must be integrated of the same order or non-stationary individually. Applying the two-step Engle and Granger technique, the first step is based on estimating the cointegration regression (i.e. equation 1) which is also the long run total stock value equation for the Nigerian stock market. To determine whether the variables are cointegrated is to test the null hypothesis of whether the estimated residuals E_t of the cointegration regression are integrated of order one [$I(1)$], against the alternative that E_t is [$I(0)$] by using the ADF test. The results of the cointegration regression and the stationarity tests for the residuals are presented in Table 1. The results show that at the 1% probability level of significance, the Engle–Granger cointegration tests reject the null hypothesis of no cointegration. Hence, there exists a long run equilibrium relationship between the value of the total stock and some key macroeconomic variables in Nigeria.

Table 2: Long-run estimates of macro-economic variables that influenced the value of Total stock transaction in the Nigerian stock exchange market

Variables	Coefficient	Std. error	t-value
Constant	-1.582	8.424	-0.19
LnDSAV _t	1.544	0.606	2.55**
LnEXDT _t	-0.137	0.173	-0.79
LnPGDP _t	-0.039	0.402	-0.10
LnICUR _t	1.258	0.599	2.10**
LnEXR _t	0.374	0.482	0.78
LnERS _t	0.266	0.123	2.17**
LnTIM _t	0.759	0.312	2.43**
LnINTER _t	-1.366	0.787	-1.74*
LnIAGP _t	0.594	1.517	0.392
R ² = 0.963	Log-likelihood = -41.04		
DW- test = 1.4	F-statistic = 89.7***		

Note: Asterisk *, ** and *** represent 10%, 5% and 1% significance levels respectively. Variables are as defined in equation (1).

7. Optimal lag- selection for variables

Before the final stage of the Engle–Granger cointegration two-step approach, the appropriate lag length limit must be chosen before the error correction model could be generated. This is done by using the information criteria such as (AIC) Akaike criterion, (BIC) Schwarz Bayesian criterion and (HQC) Hannan- Quinn criterion. The test result show that the maximum lag length appropriates for the specified variables is at the third lag indicated by the asterisks among the information criteria.

Table 3: Optimal lag length of variables used in the analysis

Lags	loglike	p(LR)	AIC	BIS	HQC
1	-19.352	-	1.695	2.217	1.879
2	-18.675	0.245	1.712	2.278	1.912
3	-12.719	0.001	1.444*	2.054*	1.659*
4	-12.328	0.376	1.477	2.130	1.707

8. Error Correction Model

The final step of the Engle–Granger cointegration two-step approach is the specification of the error correction model (ECM). According to Engle and Granger (1987), if two or more time series are cointegrated, then the relationship among them can be expressed as ECM (Granger Representation Theorem). Since the specified variables are found to be cointegrated then the dynamic ECM can be constructed taking into account the underlying cointegration properties of the variables. The prime purpose of building an ECM is to capture the dynamics in the total stock equation in the short-run and to identify the speed of adjustment as a response to departures from the long-run equilibrium. The general specification of the ECM to be estimated for the total stock transaction is as follows:

$$\Delta STCK_t = \gamma_0 + \gamma_1 \Delta \ln TIM_{t-1} + \gamma_2 \Delta \ln EXR_{t-1} + \gamma_3 \Delta \ln PGDP_{t-1} + \gamma_4 \Delta \ln CUR_{t-1} + \gamma_5 \Delta \ln DSA_{t-1} + \gamma_6 \Delta \ln EXDT_{t-1} + \gamma_7 \Delta \ln INTER_{t-1} + \gamma_8 \Delta \ln IAGP_{t-1} + \gamma_9 \Delta \ln ERS_{t-2} + \gamma_{10} \Delta STCK_{t-1} + \delta ECM_{t-1} + U_t \dots \dots \dots (2)$$

The variables are as defined previously in equation (1) and the coefficient (δ) of the ECM_{t-1} measures the deviations from the long-run equilibrium in period ($t-1$). Theoretically, the coefficient of the error correction variable is expected to be negative and its magnitude will be between zero and one. The closer this coefficient is to one, the greater the adjustment speed in the existing disequilibria between the total stock transaction and key macroeconomic variables. In order to obtain a parsimonious dynamic ECM for the total stock equation, the study adopted Hendry's (1995) approach in which an over parameterized model is initially estimated and then gradually reduced by eliminating insignificant lagged variables until a more interpretable and parsimonious model is obtained. The result of the exercise is presented in Tables 2.

Table 4: ECM estimates of the value of Total stock transaction equation in the Nigerian stock exchange market

Variables	Coefficient	Std. error	t-value
Constant	0.568	0.115	4.93***
$\Delta \ln TS_{t-1}$	-0.182	0.146	-1.24
$\Delta \ln PCGDP_{t-1}$	-0.395	0.219	-1.80*
$\Delta \ln INTER_{t-1}$	-0.542	0.421	-1.29
$\Delta \ln TIM_{t-1}$	-0.486	0.272	-1.79*
$\Delta \ln EXR_{t-1}$	0.208	0.290	0.715
$\Delta \ln EXDT_{t-1}$	-0.239	0.099	-2.40**
$\Delta \ln DSA_{t-3}$	-1.573	0.509	-3.11***
$\Delta \ln CUR_{t-1}$	-1.413	0.669	-2.11**
$\Delta \ln IAGP_{t-1}$	-2.356	1.042	-2.26**
$\Delta \ln ERS_{t-2}$	-0.005	0.117	-0.04
ECM_{t-1}	-0.260	0.121	-2.15**
Sigma = 0.437		F-statistic = 4.062***	
Log-likelihood = -13.96		RESET test = 0.655**	
DW- test = 2.3		R² = 0.651	

Note: Asterisk *, ** and *** represent 10%, 5% and 1% significance levels respectively. Variables are as defined in equation (1).

The coefficient of the error correction term has the expected negative signs and is statistically significant at 5% probability level. This supports the validity of a long-run equilibrium relationship among the variables in the total stock transaction equation, and also indicates that the total stock transactions are sensitive to the departure from their equilibrium value in the previous periods. The estimated parameter of the error correction term represents the speed of adjustment and also is consistent with the hypothesis of convergence towards the long-run equilibrium once the total stock equation is shocked. The estimated coefficient of ECM_t is -0.26 suggesting that in the absence of variation in the specified macroeconomic variables that about 26

percent of the discrepancy between actual and equilibrium value of the total stock transaction is corrected in each period. The diagnostic test for ECM models revealed the R^2 of 0.651 which implies that the specified explanatory variables explain about 65.1% of the adjusted total variations in the value of the total stock transaction. The F-statistic of 4.01 is significant at 1% probability level, indicating that the R^2 is significant and this shows that the equation has goodness of fit. The Durbin-Watson value of 2.3 indicates that autocorrelation is not a serious problem. Also, the RESET test is significant at 5% and this indicates that the equation is not mis-specified and that the assumption of linearity among variables is correct.

In the ECM model, the per capita real GDP (PCGDP) has a negative significant relationship with the value of the total stock. In the long run the relationship is not significant. The result means that PCGDP affects total stock significantly in the short run, but smoothen out in the long run. The PCGDP coefficient captures the impact of demand shock and shows that it increase causes decrease in the total stock transaction in the stock market.

The elasticity coefficient of total stock with respect to the value of total import is negative and significant at 10% in the short run but becomes positive and significant at 5% level in the long run. The result indicates that in the short run, increase in the import will retard total stock activities in the stock market, probably due to increasing demand for foreign exchange. The result further reveals that in the long run the situation reverses, as increase in total import increases the total stock transaction in the stock market. This might be linked to long run import contract, or increase in import demand imposed by improvement or growth in the economy. However, the impact of total import on the total stock demand measure by the magnitude of elasticity is greater in the long-run (0.759) than the short-run (0.486).

The coefficient of external debt has a significant (5%) negative inelastic relationship with the total value of stock in the short run. The relationship however becomes neutral in the long run. In the short run the result could be attributed to debt servicing policy of the government which could have hinder economic planning. The finding is against the report of Hsing (2011).

Increase in domestic savings has a strong significant (5%) negative elastic relationship in the short run and a significant (5%) positive elastic association in the long run with the value of total stock. This shows that domestic savings is a strong determinant of total stock transaction in the Nigerian stock market. In the short run, due to information asymmetry in the stock market, individuals may withhold their savings and refused to invest in shares. In the long run, as information becomes available to majority of investors; they will return to invest in the port folio share business in anticipation of higher interest rate. However, the impact of domestic savings is greater in the short run (1.573) than the long run (1.544).

The slope coefficient of industrial capacity utilization rate (ICUR) exhibited a positive correlation with the total value of stock both in the short run and long run models. This implies that as ICUR increases, the total stock transaction in the stock market increase. The result satisfies the *a priori* expectation, as increase in the industrial production will needs more financial capital which could easily be derived from the stock market. The magnitude of the influenced of ICUR is more significant in the short run (1.413) than the long run (1.258). The result corroborates the findings of Chen et al., (1986) in US; Shahen (2004) in Pakistan; and Rahman et al., (2009).

Index of agricultural production has a significant (5%) negative effect on the value of total stock in the short run; the relationship is insignificant in the long run. The result indicates that increase in agricultural production reduces the activities of the stock market in the short run. The reason for the result might be linked to the decreasing contribution of export based crops and large scale agriculture to the total agricultural production in the country. In Nigeria, more than 80% of agricultural production came from small-scale rural farmers who have limited accessed to formal credit sources.

In the short run the lending rate of commercial Banks has insignificant association with the total stock value. In the long run, the lending rate has a significant negative influenced on the total stock. The result is however against the *a priori* expectation. The reason for the result could be explained partly by the

insignificant growth rate in the lending rate regime during the pre-liberalization period and the concessionary lending rate offered by most commercial Banks to industrial loans.

The external reserve in the long run has a significant positive effect on the value of total stock in the Nigerian stock exchange market. The result implies that increase in the long run external reserve increases the value of total stock in the stock market. This could be explained by the fact that increase in the long run external reserve might stimulate international trade and increase economic activities in the domestic economy especially in the stock market.

9. Summary and Policy Recommendations

The study determined significant macroeconomic variables that affect the total stock transaction in the Nigerian stock exchange market. Time series data were used in the study that covers the period 1970 to 2010. Augmented Dicker Fuller unit root test was conducted on the specified data and their stationary as well as the order of integration determined. The result of Augmented Dicker Fuller test confirmed the presence of co-integration among the specified variables indicating the existence of a long-run equilibrium relationship. The long run and ECM models for value of total stock transaction were estimated. The error correction term had the appropriate sign and was statistically significant indicating a quick convergence to equilibrium in each period, with intermediate adjustments captured by the differenced terms. This implies that some key macro economic factors are in operation to restore long-run equilibrium in the value of total stock following a short-run random disturbance. The empirical results for the long run total stock equation reveals that the industrial capacity utilization rate, domestic savings, external reserves and total value of import have significant positive relationship with the total stock transaction in the Nigerian stock exchange market. Whereas the lending rate of commercial Banks has a negative correlation with the total stock transaction. The ECM model indicates that the value of total stock transaction in the Nigerian stock exchange market in the short run decrease with increasing external debt, domestic savings, total import, per capita real GDP; industrial capacity utilization and index of agricultural production.

To maintain a robust stock market in Nigeria, the study advocates for a short and long term policy packages that should focused on stabilization of real and monetary policy variables in the Nigerian economy. Also, institutional and operational reforms in the country's capital market are inevitable in a bit to further increase the subsector's efficiency. Furthermore, policymakers in the stock exchange sub-sector can regulate the activities in the stock market and attain certain level of efficiency by monitoring the fluctuations in some key macroeconomic variables in the country.

References

- Atje, R. and Jovanovic, B., (1993), "Stock Market Development" *European Economic Review*, 37(1), 16-41
- Bencivenga, V.R and smith, B.D. (1991), "Financial Intermediation and Endogenous Growth", *Review of Economic studies*, 52(2), 195 – 209
- Black, S. 1988. "A simple discounting rule". *Financial Management*, Vol.17 (Summary), Pp. 7 - 11.
- Capasso, S (2003), "Stock Market Development and Economic Growth: A Matter of Informational Problem", <http://www.ses.man.ac.uk/cgber/discusi.htm>.1-31
- Chen, N., Roll, R., & Ross, S. A., (1986). Economic forces and the stock market. *Journal of Business*, 59, pp. 383–403.
- Engle, R. and Granger, C. (1987) "Cointegration and Error Correction Representation, Estimation and Testing", *Journal of Econometrics*, Vol. 36:143-59.
- Granger, C. 1981, "Some Properties of Time Series Data in Econometric Model Specification," *Journal of Econometrics*, vol. 16 111-120.
- Hamao, Y. (1988), "An empirical investigation of the arbitrage pricing theory", *Japan and the World economy*, 1, 45-61.
- Hendry, D. F. (1995) *Dynamic Econometrics*, Oxford: Oxford University Press.
- Hsiny, Y., (2011). Macroeconomic Determinants of the Stock Market Index and Policy Implications: The Case of a Central European Country. *Eurasian Journal of Business and Economics* 4 (7), 1-11

- Khrawish H. A, W. Siam and Mohammad J., (2010). The relationships between stock market capitalization rate and interest rate: Evidence from Jordan. *Peer-reviewed & Open access journal Volume 2 Issue 2 Pp. 60-66.*
- Kyereboah-Coleman, A, Agyire-Tettey, K. F. (2008), "Impact of macroeconomic indicators on stock market performance: the case of the Ghana stock exchange", *The Journal of Risk Finance, Vol. 9 No. 4, 365 – 378.*
- Lijuan W., and Xu Y., (2010). Empirical Analysis of Macroeconomic Factors Affecting the Stock Price. *Orient Academic Forum Pp. 132-136.*
- Mahmulul, A., Gazi Salah, U., 2009. "The relationship between interest rate and stock price: Empirical evidence from developed and developing countries," *International journal of business and management, Vol.4, No3, pp.43-51.*
- Maysami, R. C., Lee Chuin H., and Mohamad Atkin H., (2004). Relationship between Macroeconomic Variables and Stock Market Indices: Cointegration Evidence from Stock Exchange of Singapore's All-S Sector Indices. *Journal Pengurusan Pp 47-77*
- Mukherjee, T. K. & Naka, A., 1995. Dynamic relations between macroeconomic variables and the Japanese stock market: an application of a vector error correction model. *The Journal of Financial Research, 18, pp. 223–237.*
- NSE (2009). The Nigerian stock Exchange Annual Report and Account.
- Nishat, D. M., & Shaheen, R. (2004). Macro-Economic Factors and Pakistani Equity Market.
- Okereke, N. O., (2010): "Overview of the Nigerian capital market (seminar presented in UNEC June 2010).
- Ologunde, A., Elumilade, D., Saolu, T., 2006. "Stock market capitalization and interest rate in Nigeria: A time series analysis," *International Research Journal of Finance and Economics, Issue 4, pp.154-67.*
- Rahman, A. A., Noor Z., Mohd S., and Fauziah H. T., (2009). Macroeconomic determinants of Malaysian stock market. *African Journal of Business Management Vol.3 (3), pp. 095-106.*
- Schwert W.G (1981) "The Adjustment of Stock Prices to Information about Inflation", *Journal of Finance, 36 (March): 15-29*
- Singh, A. (1997), "Financial Liberalization, Stock – Markets and Economic Development", *Economic Journal, 107(2), 771 – 782*
- Singh, A. (1999). Should Africa Promote Stock Market Capitalism? *Journal of International Development, 11.*
- Soenen L, Hennigar E (1988). An Analysis of Exchange Rates and Stock Prices: The US Experience (1980-1986). *Akron Bus. Econ. Rev. 19(4): 7-16.*
- Sule, K. O. and Momoh C. O., (2009). The impact of stock market earnings on Nigerian per capita income. *African Journal of Accounting, Economics, Finance and Banking Research Vol. 5. No. 5, Pp 77-88.*
- Wongbangpo, P. and Sharma, S.C. (2002), "Stock market and macroeconomic fundamental dynamic interactions: ASEAN-5 countries", *Journal of Asian Economics, Vol. 13, 27-51*