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Microstructure Change and the Effective Trading System: The Nigerian Experience

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Abstract - The Nigerian stock market have operated using the call-over system since inception, however, the call over system of trading was effective in handling the for few market transaction of the time. The emergence of a large trading facility as a result of the privatisation and the commercialisation of the hitherto government stock made the system feeble and unable to handle large transaction in the market, thus, necessitating the macrostructure change to the Automated Trading System (ATS) in 1999. Survey method using structured questionnaire was adopted for the study. It was revealed that the ATS was an effective trading system. The system brings about an efficient settlement system and foster new trading opportunities. It was recommended that to reduce human interference in the market further internationalisation of the market should be encouraged.

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Microstructure Change and the Effective Trading System: The Nigerian Experience

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Abstract - The Nigerian stock market have operated using the call-over system since inception, however, the call over system of trading was effective in handling the for few market transaction of the time. The emergence of a large trading facility as a result of the privatisation and the commercialisation of the hitherto government stock made the system feeble and unable to handle large transaction in the market, thus, necessitating the macrostructure change to the Automated Trading System (ATS) in 1999. Survey method using structured questionnaire was adopted for the study. It was revealed that the ATS was an effective trading system. The system brings about an efficient settlement system and foster new trading opportunities. It was recommended that to reduce human interference in the market further internationalisation of the market should be encouraged.

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I. Introduction

The trading system in the Nigeria capital market over decades have been done using the call-over or the manual system of trading with it attendant problem of low trading pattern and the system slow transaction system the completion of transaction was also very slow and the system can only handle few activities the call-over system was adjudged to be efficient to the extent of it installed capacity but in the instance of internalisation growth and high liquid market the call over become weak this necessitate the introduction of the automated trading system which in effect bring about a microstructure change in the stock market. The purpose of any microstructure change is to enhance growth in the stock market, to improve the trading system and to improve on the liquidity of the market (murinde, 2006). The objective of this study therefore is to evaluate the effect of the microstructure change (from manual trading system to the automated trading system) on the trading effectiveness in the Nigerian stock market from 1999 to 2011. the question is do microstructure change in the stock of any value in the growth and effective trading system in the stock market.

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Murinde (2006) proposes a theoretical microstructure characteristic model for analyzing institutional changes in the stock market, like the change from the manual trading system to the automated trading system which, is the focus of this study.

The model is based on the importance of examining the micro structure characteristics for the periods before and after the reforms, the institutional changes basically, involved changes in trading system from the manual to the computerized system or the Automated Trading System. It also captures changes in regulation system and expansion in brokerage houses, theoretically different responses are expected in microstructure characteristics as a result of institutional reforms or changes. This could be theoretically summarized in the following table.

Table 1 : Microstructure characteristics of the stock market

	Efficiency	Volatility	Liquidity
1. changes in trading system			
(a) call to open outcry floor trading	high	low	high
(b)call auction to continuous trading (i.e automated trading)	high	low	high
2. Establishment of market regulation	high	low	high
3. Entry of foreign investors	high	low	high

Source : Murinde(2006) Capital market; Roles and challenges.

Murinde (2006) theoretically expects efficient trading system to emanate from institutional reform (i.e changes from the manual trading system to electronic or the automated trading system). He also expects efficient pricing system or equitable stock pricing system. Moreover, he expects higher (or positive) market liquidity with institutional changes in the stock market.

Conceptually, Murinde (2006) measured market turnover as responsiveness of market capitalization to changes in the number of quoted firms and volume of stock traded.

Furthermore he expects a significant positive relationship between stock market size and liquidity. To ensure market efficiency, the stock market must provide

a vast information exchange, which efficiently reduces transaction costs (Green, Maggioni and Murinde, 2000).

Popovic(2004), states that the growth effect of the automated trading system can be measured by the market liquidity and stock turnover. Market liquidity measures the ease of trade. Stock Market turnover measures the speed and rate of trade.

Hudak (2005) theoretically opines that the Automated Trading System will enhance automated decision process, discipline, higher consistency in trade result, and automated monitor of trends. He further posits that the automated trading system may not work perfectly using historical data. This is because historical data produce prices of stock based on past events and trading activity. However, daily price is a function of current market impulse. The buy and sell signals may not be realized due to some other reasons (such as low liquidity, viability etc).To realize the trade, difference in the ATS signalled price and the available realistic information about the firm must move trade in some direction, that is, either up or down. Hudak (2005) is of the opinion that an inefficient stock market exists where ATS signal price and the realistic information about the firm are not positively correlated. He argued that an efficient Stock market is that market in which every security (Stock) price equals to its investment value. (i.e. NPV(Net Present Value) of Stock =IV (investment value of stock) at all times (Hudak 2005, Davis Raul 2006, Kulikowski,2006 and Ricker, 2006).

The foregoing relationship can also be implied by the 'fishers separation theorem' which states that the marginal rate of return on investment (stock) equals the market rate (market price of stock) at equilibrium (this implies an efficient market position (Murinde, 2006).

The stock exchange of Mauritius (2004) has identified the operational advantages derivable from the application of the automated trading system (ATS) which includes electronic matching of orders, internet trading facilities, enhancing internationalization of the stock market. Others are multiple prices for an order, quick order execution prices and volume levels available in real time. Also included are improved market data or information, online report of prices, higher volume of trade and index, online corporate reporting, transparency of dealings and fairness in establishing order priority. Conceptually, the automated trading system will also ensure automatic monitor and friendly stock market.

The shift in the trading system from a call-over to an automated trading system is expected to increase market liquidity and enhance transparency, thus reducing micro structure costs and volatility (Pageno and Roell, 1996).

Murinde (2006) conducted a study on micro structure theory of the African capital markets in 1999 and discovered that with institutional changes market efficiency improved in NSE (Nigerian Stock Exchange), NSC (Nairobi stock exchange) , JSE (Johannesburg stock exchange) and market liquidity also improved, while volatility reduced.

This research is aimed at studying the effects of micro structure characteristics on the institutional change in the Nigerian stock exchange. These microstructure characteristics include market liquidity and market efficiency. The work also studies market turnover, and equitable stock pricing as Oladejo(1999) contends that with institutional changes (for example from call-over system to automated trading system) efficient market system and equitable stock pricing should be attained.

II. Research Method

The study made use of the survey techniques as most of the variables were rather behavioural; hence, a structured questionnaire was used having twelve related questions to the effectiveness of the microstructure change to the Automated Trading System in the stock market. Tree hundred of this questionnaire was distributed of which two hundred and fifty were collected and only two hundred and twenty five were usable. The questionnaire were distributed to various market players which include brokers, registrars, investors, market analyst, and accountants in the market using the judgmental sampling techniques since the total populations of the market players cannot be determined. The chi-square method of analysis was equally adopted for the analysis.

List and key to variables used

A1: Effectiveness of the ATS over call-cover system.
A2: Effectiveness of the ATS in the internationalization of the Nigerian capital market.
A3: Effectiveness of the ATS in equitable allocation of share in the stock market.
A4: Effectiveness of the ATS over human manipulation or factor
A5: Effectiveness of the ATS in enhancing transparency of the stock market.
A6: Effectiveness of the ATS on improvement to the settlement system reducing delivery time.
A7: Effectiveness of the ATS on improved quality of brokerage services in stock market.
A8: Effectiveness of the ATS in continuous trading system in the stock market.
A9: effectiveness of the ATS on surveillance system in the stock market.
A10: Effectiveness of the ATS in generating new trading opportunities in the stock market.
A11: Effectiveness of the ATS in encouraging merging account between lenders, and their clients. stockbroking firms
A12: Effectiveness of the ATS in enhancing lending.

Table 2 : Mean Ranking

	Mean	Ranking
A1 (effective trading system	5.5955	1
A6 (effective settlement system)	5.3955	2
A2 (effective internationalization)	5.2455	3
A9 (Effectiveness of the ATS in enhancing effective surveillance service)	5.0818	4
A5 (stock market transparency)	5.0636	5
A 7 (Average brokerage system)	4.9955	6
A3 (equitable allocation system)	4.9045	7
A8 (Effectiveness of the ATS in enhancing continuous trading system	4.7636	8
A10 (new trading opportunities)	4.6636	9
A12 (it does not enhance lending)	4.6318	10
A11 (merging account is not encourage)	4.600	11
A4 (it has not stop human manipulation)	4.0591	12

Source: Field survey analysis (2012)

a) Descriptive Statistics

The mean ranking in table2 revealed the effect of the microstructure change on the effectiveness of the Trading System in the stock market. Generally, most of the variables were averagely agreed on by the respondents (i.e. market participants). It can be seen from table1 that the microstructure change (to Automated Trading System) provoke effective and efficient trading system than the call over system (A1 = 5.37) A1 is most agreed, while the automated trading system (ATS) is effectively free of all human manipulation (A13, mean = 4.05) was least agreed, it was a very low extent variables.

Table 2 also show that the Automated Trading System has brought great improvement to the settlement system reducing delivery time (A6), the ATS is also shown to be effective in the internationalization of the Nigerian stock market (A2), Also the study shows that the ATS has brought about effective surveillance system in the stock market (A9) It also revealed that the ATS fosters efficiency and transparency of the stock market (A5) As their mean were almost in the same range with the ATS considered a more efficient trading system than the call over system (A1)

Oladejo(1999) noted that the use of computer assisted markets surveillance techniques, and the ability of the Automated Trading System to provide accurate audit of all transactions greatly facilitate the increasing demands for all stocks in the exchange and ensure integrity of the market operation. Also, the design of the ATS had taken into account, the need for optimum flexibility to allow the exchange surveillance unit to be proactive in ensuring integrity of the markets. The Automated Trading System is not effectively free of all human manipulation because, just as Ojo(2000) said, there is no difference between pricing of securities in the call over trading system and the ATS. The microstructure change efficiency theory by Murinde(2006) is justified here with most of the variable having average mean (i.e. mean > 0.5) therefore; there exist efficient stock market with introduction of the ATS. Thus the micro structure variable of efficiently is positive (+).

III. Test Of Hypothesis One Using Chi-Square

Table 3 : Chi-Square test

The effectiveness of the ATS on the Nigerian Stock Market												
	NEA	VLE	LE	AVT	HET	VHE	TOTAIL	$\overline{X}^2$ Cal	$\overline{X}^2$ Crt 0.05	df	P	Decision Accept
1	12	8	5	11	12	52		92.12	11.07	5	0.0	H1
2	18	7	11	5	54	54		107.6	11.07	5	0.0	H1
3	7	24	19	15	6	29		25.28	11.07	5	0.0	H1
4	9	26	5	16	6	38		51.08	11.07	5	0.0	H1
5	14	23	10	15	10	28		16.04	11.07	5	0.0	H1
6	8	9	8	18	10	47		70.52	11.07	5	0.0	H1
7	6	7	6	30	7	44		80.36	11.07	5	0.0	H1
8	4	19	9	10	7	51		92.48	11.07	5	0.0	H1
9	16	19	5	6	7	47		76.016	11.07	5	0.0	H1
10	15	24	11	9	8	33		29.36	11.07	5	0.0	H1
11	13	18	8	8	5	48		77.0	11.07	5	0.0	H1
12	1	2	6	32	14	45		97.16	11.07	5	0.0	H1

Source: Field survey analysis (2012)

IV. Interpretation And Discussion Of Findings

Since the X2 calculated values in all the questions asked is greater than X2 critical value of 11.07 at 0.05 significant levels. Also using the Friedman chi-square which produced X2 calculated value of 185.873 which is also greater than x2 critical value of 11.07 at 0.05 significant levels, the alternative hypothesis is accepted and the null hypothesis rejected. Thus, it therefore means that the introduction of the ATS to the Nigerian stock bring about effectiveness of the trading system. To a large extent, this findings further confirmed the assertion of Oladejo(1999) and Murinde(2006).

V. Conclusion and Recommendation

The following are the conclusions that could be drawn from this study.

The ATS is an effective trading mechanism but has been grossly underutilized.

The activities of strong individuals and institutional investors have not allowed for equitable Stock Pricing System. It is also revealing that an efficient settlement system and effective surveillance service were achieved with the introduction of the ATS.

The ATS has been subjected to human manipulation hence making the system biased. It was discovered from the study that the information content of the stock price is low ,that is, most stock price or value traded at the Nigerian Stock Exchange were not truly reflective of the intrinsic (internal)information about the firm this supports the assertion of Murinde (2006) that in some African countries (e.g. in Zimbabwe) institutional change have not improved intrinsic informational content of the price of Stock traded. It is recommended that the system should encourage true transparency by eliminating human manipulation of the system, this, can be attained by expanding the scope of trading to regional and international boundaries.

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