# Capital Market Efficiency: The Nigerian Experience

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## Abstract

The platform for the exchange of financial instruments is the capital market, operated by profit-driven investors and regulators. The achievement of profit goals by investors at a minimal cost to them and market regulators shows the efficiency of the market. Secondary data obtained on value of traded shares as a percentage of market capitalization (stock turnover ratio) on Nigeria was tested using the two-tail sign test for small samples. Result of binomial statistic of the sign test at $\alpha=10$ was 0.0669, greater than $\alpha/2=0.05$; thus we accept the null hypothesis that Nigeria's capital market is operationally inefficient; discouraging share trading and listing of securities in the Nigerian capital market and security trading. To improve on the efficiency of the Nigerian capital markets making it attractive to firms seeking listing, capital market policy makers in Nigeria should initiate policies that minimize stock transaction costs to increase listings, stock market activity and stock turnover.

## 1 Introduction

Market in financial theory is the platform for the exchange of financial instruments for cash. Surplus spending units buy financial instruments offered in the market as an investment to reap in the future, gains. Deficit spending units offer financial securities in their possession for sale to raise funds. These instruments are intangible. The investment activity of the surplus spending units (ssu) puts them on the demand side of the market; while capital funds raising activity of the deficit spending units (dsu) through the sale of financial instruments, put them on the supply side of the financial market. In economic theory demand is a function of price (cost), durability, effectiveness, taste, income earned,

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perceived benefits and availability of alternatives to that demanded. So is the demand in financial markets.

The demand by the surplus spending units is a function of the price (cost) of the financial instrument in the market, its durability, effectiveness (marketability), and the income of the ssu and income derivable from the instrument, and not only the income of the buyer as in general economic theory.

The financial ability of ssu is a function of his income. All the information about this is available to him. A decision to invest in a financial instrument based on his personal income will be based on cost of the security and information which is fully available to him. He will not rely solely on this as demand in a function of price, marketability and income derivable from financial investment. Information on price (cost) can be obtained from publicly available market indices. On marketability and derivable income, information can be obtained from market operators, regulators, publicly available economic indices of the instrument, the issuer of the financial instrument and market analysis. That from regulators, the issuer of the instruments and market analyst may not be easily accessible. The regulator may not devolve all information about an issuer, so as not to destabilize the market and confidence in it. The issuer of the instrument will not give out information especially about its weaknesses but only its strength. It is the hoarded information that is important because it reveal the risks of the company and its financial strength. The market analyst being a profit maximizing player in the market will hoard information for himself and transact to his financial gains.

The supply side of the financial market is a function of price (cost), marketability and income from an instrument. From the above we see that information on price is a public one, while that on marketability and derivable income may not readily be available to the public. From economic theory, the equilibrium of demand and supply determine the price and quantity demanded/supplied of a financial instrument. Financial theory further tell us that the price of a financial instrument in reflection of the intrinsic value of that instrument. This intrinsic value is the imputation of the marketability and income derivable from the instrument, in its price. The imputation may have a negative or positive effect on the price of the security depending on perception (negative or positive), of the available information on the marketability and derivable income from the security. Perception is judgment on all relevant information about derivable income, price and marketability. These are about the financial instrument itself and are fundamental.

Efficiency literally is the achievement of desired objectives at the least cost. Where financial transactions are at the least possible quantifiable cost, that market is termed an efficient market.

The purpose of this study is to determine whether the Nigerian capital market is operationally efficient.

## 2  Review of Literature

### 2.1 Perceptions of an Efficient Market

Scott. Jr. et al (16), define an efficient market as one "in which the values of all assets and securities at any instant time fully reflect all available public information". They added that in such, the intrinsic value and market value of a security will be equal; because in inequality, the competitions among investors seeking opportunities to make profit quickly

drive the market price back to its intrinsic value. Fama (6) agree with this. Pinches (14), added that, information available to the market must also be cheap and ascertainable.

To Osaze (12), an efficient market must have both breath and depth; transaction costs associated with investing, minimal; brokerage charges and floatation costs, low; securities of similar industries, perfectly substitutable; free entry for operators into the market; and operators, having extensive knowledge of market operations. These submissions confirm the existence of capital market information efficiency and capital market operational efficiency.

## 2.2 Capital Market Efficiency

Financial theorists, Campsey and Brigham (4); Pinches (14); Scott, Jr. et al (16); Brealey and Myers (3); Ako (1); Smitters and Wright (17); Pandian (13); Grimblatt and Titman (7); Esme(5); Guisso et al (8); and Osaze (12)  observed  that for a market to be efficient, there must be a large number of profit-driven individuals who act independently; cost  of transaction in the market must be as minimal as possible, new information regarding securities must arrive in the market in a random manner; investors as free economic agents in a free market, must always adjust to new information immediately, and buy and sell the security until the full market price correctly reflect the new information;  the available public information must be ascertainable by all operators; acts of independence of market participants must be in the analysis and valuation of securities and not in operation;  there must be free entry of market operators to increase market depth; floatation and brokerage costs should be minimal to increase market breath; transaction costs and expenses associated with investing should be minimal to increase market activity; there should be perfect substitution of securities of similar industries to increase market  activity  of  divesting  and  investing;  and   market  operators  should  be knowledgeable in capital market operations.

Explanations and perceptions of scholars on what an efficient market is, is universally accepted as a statement of proposition that prices react quickly and unambiguously to new information. This statement known as the efficient market hypothesis has been extensively tested which according to Pinches (14) indicate quick reaction of stock prices to new information (information efficiency of capital market). Most empirical findings according to him suggest stock market to be highly efficient in the strong form and reasonably in the semi-strong form. Market efficiency to Osaze (12), Grimblatt and Titman (7), Scott, Jr. et al (16) and Jones and Netter (9) is also viewable from the ease of capital market transactions and the minimality of the costs: brokerage, floatation and disposal costs, associated with investing (operational efficiency of capital market). Financial literature is abound with empirical findings: Guisso et al (8), Smitters and Wright (17), Brealey and Myers (3), Ako (1) and Esme (5), that the lower these costs the more firms will take advantage of the market to raise more funds and investors cheaply disposing of their securities, increasing stock turnover in the market.

The Nigerian capital market like others in advanced countries, make possible the buying and selling of securities. The price at the sell and buy points are determined by the forces of demand and supply which depends on the information available about the securities from external audit reports on firms, security analysts and underwriters. In a perfectly efficient securities market, the prices of stocks fluctuate randomly around their intrinsic value, which are always at or near the equilibrium. Any temporary deviations from

equilibrium prices are quickly corrected using available information about the stock in the market.

Since these are public information, it is simultaneously available to all investors at no extra cost. Thus stock prices adjust instantly to new information resulting in a new set of intrinsic values of stocks with investors adjusting their portfolios. All these happen simultaneously. Under a perfectly efficient market the price of securities will definitely equal its intrinsic value (i.e. its price based on the worth of the firm). It is thus impossible under these circumstances to make economic profits by trading on the information available, because such market quickly processes all relevant information and reflect it instantly in the price of stocks (Udegbunam and Oaikhenam, 18). These submissions further confirm the existence of capital market information efficiency and capital market operational efficiency.

In the Nigerian capital market, stock prices are not allowed to reflect public information as shares are prevented from reflecting their true values through the imposition technical suspension on price movements; the low number of market operators in the Nigerian capital market lead to collusion and/or monopolistic price manipulation, which do not reflect the true value of the firm Oludoyi (10). The absence of punitive measures for this act, encourage the use of insider information to the detriment of other market investors; the buy and hold attitude of Nigerian individual investors reduce the number of participating investors in daily dealing, leaving few institutional investors to determine the buy and sell point values of shares; the holding period of equities are predetermined by Nigerian investors, not being a function of information about the firms, as most investments in equities are financed with margin loans and debt finance which are to be repaid at a predetermined period; the value at the buy and sell points for equities is a function of demand and supply, both being a function of economic performance and financial needs of investors, and not on information about the securities and issuers; most equities in the Nigerian capital market are held by institutional, and individual investors holding large amount of equities creating a high probability of collusion to meet the 50,000 minimum share transaction for daily price movement, not due to information publicly available. Public information of Nigerian firms are doctored, preventing true information from getting to the public (Oludoyi, 11) High registration requirements for capital market operators minimize their number in the market, restricting free entry and exit requirement for capital market efficiency. Looking at the three levels of market efficiency by Roberts (15), Oludoyi (10) described the market as a regulated one where prices are prevented from being determined solely by the forces of demand and supply through the imposition of caps on daily price movements, imposition of high charges on transaction (about 25% of raised capital) with payments for stamp duties at 0.05% of transaction value, withholding and capital gains tax.

## 3 Methodology

### 3.1 Variable Description and Test Statistic

To measure the operational efficiency of the Nigerian capital market, we proxy the total transaction costs in the market using the stock turnover ratios for Nigeria obtained from the World Bank Economic Indicators, 2010. Stock turnover ratio, the value of traded shares as a percentage of market capitalization, reflect the cost of transactions in a capital

market as high stock turnover ratio indicate the existence of low transaction costs (a measure of operational efficiency of the market) and low stock turnover ratio an indication of the existence of high market transaction costs (Jones and Netter, 9). Obtained data on Nigeria's stock turnover ratios from 1989-2010 are analysed using the two-tail one sample sign test for small samples.

## 3.2 Description of data

Data obtained on Nigeria's stock turnover ratios from World Bank Economic Indicators, 2010 covering the period 1989-2010 as shown in table 1 indicate a growth, decline, stable, growth and decline pattern.

Table 1: Nigeria's stock turnover ratios

| Year | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Stock turnover ratio | 0.4 | 0.9 | 0.6 | 0.9 | 0.9 | 1.0 | 0.6 | 2.6 | 3.7 | 4.9 | 5.0 | 7.3 | 10.3 | 8.5 | 11.3 | 13.9 | 11.5 | 13.6 | 28.2 | 29.3 | 11.0 | 12.5 |

Source: World Bank Economic Indicators, 2010

Using the sign test, an increase in stock turnover ratio in a year over the immediate preceding year is given a + sign; a decline of stock turnover ratio in a year against that of the immediate year is given a – sign; if no change occurs, then a 0. Thus we have:
+ - + 0 + - + + + + + + - + + - + + + - +; where X is the random variable representing the number of plus signs=15, negative signs=5 and 0=1.

## 3.3 Hypothesis

The following hypothesis is tested to determine whether Nigeria's capital market is operationally efficient:
$H_o$: P=1/2 (Nigeria's capital market is not operationally efficient)
$H_1$: P ≠ 1/2 (Nigeria's capital market is operationally efficient)
The null hypothesis is tested at α=0.10 using the normal approximation to binomial distribution with P=1/2.
### 3.4 Data analysis
The null hypothesis is tested at α=0.10 using the normal approximation to binomial distribution with P=1/2, where X is the random variable representing the plus signs=15. Half of the significance level (α/2) is to be kept at both tails of the distribution.
Therefore P (X≥15, n=22, P=0.5) = 1- P(X ≤14, n=22, P=0.5)
                              = 1-.9331, =0.0669.

Since P $(X \geq 15)$ is more than one-half of the significance level ($\alpha/2=0.5$), the binomial statistic falls in the acceptance region. Hence, we accept $H_o$ i.e. Nigeria's capital market is not operationally efficient.

## 4  Discussion of Findings, Policy Implications and Recommendations

Acceptance of the null hypothesis show that Nigeria's capital market is operationally inefficient, indicating the existence of high transaction costs in the market discouraging primary listings, volume of securities listed and secondary trading on listed securities as listing firms pay serial costs: stamp duties, listing fees and transaction costs accounting for 25% of raised funds; and investors, transaction costs and capital gains and withholding taxes. The growing, declining, stable, growing and declining pattern of stock turnovers during the 22 year period studied is a reflection the reduction, increase, stability, reduction and increase in transaction costs on the Nigerian capital market.

Findings of this study showing the inefficiency of the Nigeria's capital market imply that capital market policies increasing stock transaction costs exist in the market reducing the efficiency of the capital market, making it less attractive to firms seeking listing in the Nigerian capital market from listings on its stock exchange. To increase listings in the Nigerian capital market from 210 (as it is currently), its level of efficiency should be enhanced. Thus capital market regulators in Nigeria should minimize capital market transaction costs to boost stock trading in the capital market, increasing efficiency in the market, capital sourcing from the market, increase market capitalization, force market discipline on the Nigeria capital market necessary to attract and retain more listed securities, and boost market stability.

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