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Test of Capital Market Efficiency Theory in the Nigerian Capital Market

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Abstract
This study examines the efficiency of the Nigerian capital market by using market capitalization. Data for the study were obtained from the Nigerian Stock Exchange as well as the Central Bank of Nigeria statistical bulletin and the study spans between 1990-2009. Ordinary least square regression technique was used to analyse the data. Findings from the study showed that the Nigerian capital market is efficient by using market capitalization.
Key Words: Capital Market, Efficiency, Market Capitalisation.

I. Introduction

Capital Market is a market where long term funds can be raised. It provides an additional channel for engaging and mobilizing domestic savings for productive investment (Olowe, 2010). Capital market facilitate the buying and selling of securities such as shares and bonds, hence, they perform two functions namely, liquidity and pricing of securities (Pandey, 2004). Hence, the capital market provides a bridge by which the savings of surplus units may be transformed into long term investments of deficit units.

Capital market deals with securities; hence, it facilitates the allocation of funds between savers and borrowers. The allocation will be optimum if the capital markets have efficient pricing mechanism.

The question to be asked is "are capital markets efficient?". This paper seeks to find answers to the above question by looking at the efficiency of the Nigerian capital market by using market capitalisation. Market capitalisation is the total value of a company by multiplying the number of shares outstanding by their current price per share. This could also mean the total market capitalisation of all companies listed on the stock exchange.

This paper is structured into four parts. The first part deals with introduction. The second part examines the objective, hypothesis of the study and scope and sources of data for the study. The third part deals with model specification. The fourth part which is the final part summarizes and concludes the paper.

II. Objective of the study

The objective of this study is to examine the efficiency of the Nigerian capital market by using market capitalisation.

Hypothesis of the study

The hypothesis that was formulated and tested for the study is shown below:
Ho: The value of securities on the Nigerian capital market does not react efficiently to market capitalisation.
Hi: The value of securities on the Nigerian capital market reacts efficiently to market capitalisation.

Scope and Sources of Data for the study

This study covers all companies drawn from all sectors of the Nigerian capital market quoted on the first and second tiers securities markets. Data were obtained principally from the Lagos Branch of the Nigerian Stock Exchange and the Central Bank of Nigeria statistical Bulletin (various issues) and the study spans between 1990-2009.

III. Model Specification

$\text{Log VOT} = \beta_o + \beta_1 \text{logMKTCAP} + \mu$
Where:

VOT = Value of Transactions (A measure of aggregate share price).
MKTCAP = Market capitalisation (Total value of a companies listed on the stock exchange).
β_o = Intercept or constant term of the relationship.
β_1 = Co-efficient of market capitalisation.
μ = Stochastic error.

MODEL 1: (Value of securities and market capitalisation).

A summary of the regression results from the relationship are presented below:

VOT = -10137.623 + 109.832MKTCAP
(46603.99) (10.98)
R = 0.921
R^2 = 0.847
F* =100.02
DW_{stat} =2.885

The value in bracket also indicates the standard error of the estimate which is used to test the significance of the estimate by the rule of thumb.
The constant value of -10137.623 represents the value of transactions in securities when the market capitalisation does not exist.
The co-efficient of MKTCAP of 109.832 suggests that an increase in market capitalisation by N1 will have a multiplier effect of an increase of about 109.83% on the value of the securities.
The value of R for the model is 0.921 which shows a strong and almost perfect positive multiple correlations among variables investigated.
The value R^2 value of 0.847 represents the co-efficient of determination which shows the proportion of variation in the dependent variable explained by the regression model. Hence, about 84.7% of the relationship that exists between the variables in the model can be explained using the data under review, while the remaining 15.3% are included in the stochastic error.
The Durbin-Watson test value of 2.885 based on the OLS residuals suggests the presence of positive serial auto-correlation between among the variables under investigation.

Statistical Test of Hypothesis

The F-test is used to test the hypothesis at the 5%level of significance.

Hypothesis

Ho: The value of securities on the Nigerian capital market does not react efficiently to market capitalisation.
Hi: The value of securities on the Nigerian capital market reacts efficiently to market capitalisation.

The test of hypothesis is carried out with the analysis of variance, F statistics.
The theoretical F (at 5 percent level of significance) is 4.41, comprising the F* ratio with the theoretical F. It can be seen that 100.02 is greater than 4.41 (i.e. 100.2 > 4.41). The null hypothesis is thus rejected and the alternative hypothesis accepted. Hence, the regression equation is significant.
From the above, it can be deduced that the Nigerian capital market reacts efficiently to market capitalisation.

IV. Summary and Concluding Remarks

This study x-rays the efficiency of the Nigerian capital market by using market capitalisation.
Findings from the study showed that the Nigerian capital market reacts efficiently to market capitalisation. Hence, the regulator in the capital market should devise strategies to increase the total value of the companies quoted on the Nigerian stock exchange so as to foster the development of the Nigerian capital market.

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Appendix
Regression Result
Variables Entered/Removed

Model	Variables Entered	Variables Removed	Method
1	MKTCAP		Enter

a. All requested Variables entered.
b. Dependent Variable VOT

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.921[a]	.847	.839	1.77056E5	-2.885

a. Predicators: (Constant), MKTCAP
b. Dependent Variable: VOT

ANOVA[b]

Model	Sum of Squares	Df	Mean Square	F	Sig.
1. Regression	3.136E12	1	3.136E12	100.023	.000[a]
Residual	5.643E11	18	3.135E10		
Total	3.700E12	19			

a. Predictors: (constant), MKTCAP
b. Dependent Variable: VOT

Co-efficients[a]

Model	Std. Error B Unstandardized coefficient	Beta Standardized coefficient	 sig t
1. (constant)		.921	-218 .830
2. MKTCAP	-10137.623 46603.990 109.832 10.982		10.00 1.000

a. Dependent Variable: VOT

Residuals Statistics[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-8347.3682	1.4500E6	235753.8600	4.06243E5	20
Residual	-3.74009E5	6.38962E5	.00000	1.72334E5	20
Std. Predicted Value	-601	2.989	.000	1.000	20
Std. Residual	-2.112	3.609	.000	.973	20

a. Dependent Variable: VOT