

# THE EFFICIENT MARKET HYPOTHESIS (EMH): THEORY AND EVIDENCE IN NIGERIA

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## Abstract

*This paper examines the Efficient Market Hypothesis in Nigeria. The paper is descriptive in nature. It describes the forms of market efficiency and highlights the various factors that have militated against market efficiency in Nigeria. The paper opines that for Nigerian capital market to be efficient some of the factors enumerated in this paper need to be taken into consideration.*

## Introduction

The capital market is the framework of institutions that arrange for long term financial assets such as shares, debentures, stock and mortgages. When the maturities to the instrument traded are more than one year, the market is known as capital market. The financial claims or instruments traded on the capital market are known as securities. In a broader sense, therefore, the capital market covers all services rendered by institutions and facilities which exist for mobilizing long term funds and for channeling such funds to ultimate users. Capital markets also exist for public sector securities and bonds (Watson and Head, 2001).

Institutional investors, companies and a host of others that trade in the capital market will want to assign fair prices to the financial securities being traded. In other words, the categories of people mentioned above will want the capital market to be efficient. It is possible to describe the characteristics of an efficient capital market by considering the relationship between market marked prices and the information available in the market. Empirical studies have been conducted in both developed and less developed countries on the efficiency of the capital market.

However, this study is theoretical and evidence in outlook with special emphasis on Nigeria.

This paper is structured into seven parts. The first part deals with the introduction. The second part discusses the literature review while the third part examines theoretical framework. The fourth part discusses the methodology for the study. The fifth part examines evidence of efficient capital market in emerging economies. The sixth part discusses the factors that militated against market efficiency in Nigeria. The seventh part which is the final part summarizes and concludes the paper.

## Literature Review

Capital market efficiency can be viewed from the roles expected of the market which include allocation efficiency, operational efficiency and pricing efficiency. Pricing efficiency, of all the three roles is the emphasis in finance as it incorporates albeit in a limited sense both allocation and operation efficiency (Copeland and Weston, 1983, Olowe, 2011).

Capital market efficiency can thus be defined as a market where security prices quickly and fully reflect all available information. Hence, if a market is efficient, any or all devices intended to "beat" the market will be rendered useless. In an efficient market, the same rate of return for a given level of risk should be realized by all investors. The behaviour of any participant or group should not influence the price of a security in the market (Khoury, 1983).

Fama (1965) opined that the definitional statement that in an efficient market, prices fully reflect available information is too general to have a testable notation. The notion of market efficiency does not imply that some stock cannot offer prospects of greater gain than others, for such attraction may be off-set by corresponding disadvantages.

Samuel and Yacout (1981) on the other hand, defined an efficient market as a market that functions effectively with the least waste. Such a market can produce results. They identified some basic characteristics of such a market to include the fact that operators in the market should be involved in a "fair game" others include operation as well as allocational efficiency.

Samuelson (1965) outlined the basic assumptions for an efficient market as follows:

- No transaction cost is incurred in trading in security
- Information is costless and is freely available to all market participant
- There are many buyers and sellers and none of them dominates the other.

However, Fama (1970) opined that the efficient capital market requires fewer restrictive assumptions as stated below:

- Reasonable transaction cost of trading in securities
- Information is available to a sufficient number of investors

### Theoretical Framework

#### Random Walk Theory

Bachelier (1900, 1914) was the first person to recognise that security prices and prices of other speculative commodities follow a "random walk". Working (1934) later confirmed the study earlier made by Bachelier for a variety of price series. Cowles (1937) using American stock prices also produced the same result. Kendall (1953) in his study of British stock and commonly, prices found out that there was no correlation between successive price changes and asset market prices.

Other studies in support of the random walk theory include, Roberts (1959), Osborne (1959), Moore (1962), Fama (1965), Samuelson (1965), Fama and Blume (1966), James (1968), Van Home and Parker (1967), Black and Scholes (1972), Samuel and Yacout (1981), Ajayi (1983), Ekechi (1989) Olowe (1996), Adelegan (2004) among others.

#### Market Efficiency Theory

According to Fama (1970), there are three main forms of market efficiency. They are the weak-form efficiency, semi-strong form efficiency and strong form efficiency.

**Weak-Form Efficiency** – Under weak-form efficiency, asset prices incorporate all information from the historical record. In other words, prices in a weak-form efficient market incorporate all information about price trends or repeating patterns that occurred in the past. This proposition implies that trading strategies based on analyses of historical pricing trends or relationship cannot be used to outperform the market. Prices in the weak-form efficiency will be unpredictable and will change only in response to the arrival of new information. In other words, this means that prices follow a *random walk*.

The weak-form efficiency can be expressed mathematically as:

$$E(P_t) = P_0 + e_i$$

Where:

$E(P_t)$  = the expected price of an asset next period

$P_0$  = today's price

$e_i$  = random error which has an expected value of zero.

Kendall (1953), Osborne (1959), Fama (1970), Yacout (1981), Ayadi (1983), Olowe (1996), among others showed that the stock market is efficient in the weak form. These studies were arrived at different countries.

**Semi-Strong Efficiency** – This version asserts that prices incorporate all publicly available information. The key point about this form of efficiency is that it requires only that prices reflect information that can be gleaned from public

sources (e.g. newspaper, press release and computer databases.) There is both a “stock” and “flow” aspect to the information-processing capabilities of semi strong form efficient markets: First, the level of asset prices should correctly reflect all pertinent historical, current and predictable future information that investors can obtain from public sources. Second, asset prices should change fully and instantaneously to the arrival of new.

Ball and Brown (1968), Fama, Fisher and Roll (1969), Aharony and Swary (1980), Gupta (2003), Raja et. Al. (2009), Adelegan (2009) Rapulchukwu (2010), Chakraborty (2011), Ogundina, et. al. (2014), Ogege, Ogbulu and Isu (2015), arrived at different conclusions in their studies.

**Strong-Form Efficiency** – This is the third level of efficiency where asset prices reflect all information, public and private. This extreme form of market efficiency implies that important-specific information will be fully incorporated in asset prices with very first trade after the information is generated. For example, a firm’s stock price should increase immediately after the board of directors votes for a dividend increase and before the firm publicly announces the increase. In strong-form efficient markets, most insiders trading would be unprofitable, and there would be no benefit to ferreting out information on publicly traded companies. Any data morsel so obtained would already be reflected in the stock and bond prices. Like semi strong-form efficiency, strong-form efficiency also implies that there is both a stock and flow aspect to a market’s information-processing abilities.

### **Methodology**

This study is descriptive in nature hence it is theoretical and evidence in outlook with special emphasis on Nigeria.

### **Evidence of Efficient Market Hypothesis in Emerging Markets including Nigeria**

A lot of research has been done on the validity or otherwise of the efficiency of the capital market in developed countries. However, there have been some studies in developing countries. Some of

these studies include Feldman and Kumar (1995) who took a global look at emerging markets. They found that between the end of 1983 and the end of 1993 the combined total capitalization of the emerging markets increased dramatically from less than US \$2trillion. This increase was attributed to gains due to new listing and large increase in share prices that have markedly exceeded those in industrial countries.

Most empirical studies on the efficiency of the capital markets in developing countries were on the weak form efficiency. Findings on these studies are mixed. It is generally believed that the emerging markets are less efficient. The empirical evidence does not always support this thought, however, for example, Branes (1986), Chan, Gup and Pan (1992) and Ojah and Karemera (1999), found weak-form efficiency on the Kuala Lumpur, major Asian markets and the four Latin American countries’ Stock Exchange respectively. On the other hand, Cheung, Wong and Ho (1993), Mobarek and Keasey (2000) found that the Korean, Taiwan and Dhaka, Bangladesh Stock Exchanges were not efficient in the weak-form. In a World Bank study, Claessens, Dasgupta and Glen, (1995) report significant serial correlation in equity returns from 19 emerging markets and suggest that stock prices in emerging markets violate weak-form EMH. Similar findings are reported by Harvey (1994) for most emerging markets.

As regards emerging markets in Africa, Roux and Gilberson (1978), Dickinson and Muragu (1994), Osei (1998) and Matome (1998) came to the same conclusion of lack of weak form efficiency on the Johannesburg, Nairobi, Ghana and Namibian Stock exchanges respectively. Empirical studies along this line on the weak form efficiency of the Nigerian Stock Exchange were carried out by Ajadi (1983) and Samuel and Yacout (1981). They found out that the Nigerian capital market was weak form efficient. This was however refuted by Ekechi (1989) and Nwanbiankea (1990). Ekechi in his study came to a conclusion that the random walk hypothesis does not hold for the

Nigerian sample, and so the Nigerian stock market was not weak-form efficient.

Few attempts have been made to test the semi-strong efficient form hypothesis of the Nigerian Stock Exchange. Olowe (1996) using stock splits concluded that the Nigerian capital market was not semi-strong efficient. Ogundina

Ogege et. al, (2015) investigated the semi-strong efficiency level of the Nigerian Stock Exchange by examining whether stock prices adjust to dividend and earnings announcements in the Nigerian Stock Exchange. The findings of their study reveal that stock prices in the Nigerian stock market did adjust efficiently to dividend and earnings announcements in the three sub-periods covered by their sample. Also, the cumulative average abnormal returns for the different combinations of dividend and earnings in the three sub-periods were not significant suggesting that the Nigerian stock market is semi-strong efficient.

Various reasons have been advanced for the findings of non-efficiency in the weak and strong-form of the emerging capital markets. Khababa (1998) did a study of Saudi Arabian financial market which he found to be due to delay in operations and high transaction costs, thinness of trading and liquidity in the market. Akpan (1995) gave similar rationale on the inefficiency of the Nigerian stock market, attributing it to the relative thinness of the market.

#### **Factors militating against efficient capital market in Nigeria**

Some of the problems inhibiting the efficiency of the Nigerian capital market include among others:

- Lack of adequate and timely information
- Low level of understanding of financial information by Nigerian investors.
- The volume of transactions conducted in the Nigerian capital market is rather small in terms of depth and breadth of instruments.
- High cost of trading as resources are not utilized to the most productive uses

- Undynamic nature of the Nigerian capital market, as a market that is not dynamic cannot be efficient
- Low level of automation
- Malpractices and fraud especially inside abuses
- Lack of infrastructures such as good communication
- Low level of skills by operators in the market
- Absence of portfolio investors
- Low articulate financial press to guide investors as it is done in developed world

However, of recent, there has been an improvement in the provision of adequate infrastructures that would aid the efficiency of the Nigerian capital market as communication system has been improved with the advent of mobile telephones. In addition, the Nigerian Stock Exchange has embarked on enlightenment campaigns and seminars in companies, schools and other institutions to educate investors as to be aware of the opportunities that are available in the capital market. In recent times, there has been greater improvement on the skills required by operators in the capital market with the professional body of stockbrokers known as the Chartered Institute of Stockbroker (CISB) who now conduct professional examinations for would-be stockbrokers so as to be adequately equipped.

As regard automation, the central securities clearing system (CSCS) which serve as a clearing house of the Nigerian Stock Exchange was incorporated on July 29, 1992 and commenced operation on April 14, 1997.

This has clearly improved the level of automation in the operation of capital market and trading is now done on-line. The Nigerian capital market has also automates its bond market to permit electronic trading of debt securities. The Nigerian Stock Exchange has also introduced electronic bonus (E- bonus). Efforts are also been made to internationalize the Nigerian capital market so as to attain the height of its counterparts in developed

nations. There is no gainsaying the fact that in few years to come, the Nigerian capital market will get to a level of becoming efficient in the weak and semi- strong forms

### Summary and Concluding Remarks

Attempt has been made in this paper to examine efficient capital market hypothesis in emerging nations such as Nigeria and to find out whether the Nigerian capital market will be efficient in any form in the nearest future. The paper x-rays some of the various studies that have been carried out in both developed and developing nations on the efficient market hypothesis and also addresses the problems inhibiting against capital market efficiency in Nigeria.

The paper is for the view that if all the problems encountered in the Nigerian capital market as enumerated in this paper are taken into consideration so as to deepen the market, in no distant future, the Nigerian capital market will definitely be efficient in the weak-form and probably in semi-strong form.

### References

- Adelegan, O. J. (2004). How efficient is the Nigerian stock Market? Further Evidence, *African Review of Money, Finance and Banking*, 145-165.
- Akpan, O. E. (1995). Thin and Thick Capital markets: Empirical Test of Evidence for the Nigerian Stock Exchange, *Nigerian Journal of Economic and Social Studies*, 37.
- Ayadi, F.O. (1984). The Random Walk hypothesis and the Behaviour of Share prices in Nigeria, *Nigerian Journal of Economic And Social Studies* 26 (1), (March), 57-71.
- Ball, Ray & Philip Brown (1968). An Empirical Evaluation of Accounting Income Numbers, *Journal of Accounting Research*, 6, 159-178
- Dimson, E. & Mussaviann, M. (1989). Weak-Form Efficiency in The Nigeria Stock Exchange, *African Review of Money, Finance And Banking* 1(38), 34-105
- Ekiran O. (1999). *Basic Understanding of Capital Market Operations*, CIBN Press Ltd, Lagos.
- Fama, E. (1965). The Behaviour of Stock Market prices, *Journal of Business*, (38), 34-105
- Fama, E. (1970). Efficient capital markets: A Review of Theory and Empirical Work, *Journal of Finance*, 25, (May), 33-417.
- Fama. E. (1991). Efficient Capital Markets 11, *Journal of Finance* 46, 1575-1617,
- Fama; E. Fisher, L. Jensen, M. & Rol R. (1969). The Adjustment of Stock Price to New Information, *International Economic Review*, 10, 1-21.
- Feldman, R .A. & Kumar, M. S. (1995). Emerging Equity Markets: Growth, Benefits, and Policy Concern. *The World Bank Research Observer* 10.(2 ) 81-200.
- Jensen, M. (1968). The Performance of Mutual Funds in the period 1945-1946, *Journal of Finance*, 23, 389-416.
- Kendall, M. (1953). The analysis of Economic Time Series, *Journal of the Royal Statistical Society*, Series A, 96, 11-25.
- Khababa, N. (1998). Behaviour of Stock Prices in Saudi Arabian Financial Market: Empirical Research Findings, *Journal of Financial Management & Analysis*, 11 (1), Jan-June, 48-55
- Nwabiankea, C.A. (1990). Testing the Efficiency of the Stock Market Using the Random Walk Hypothesis (A case Study of Nigerian Stock Market). *An Unpublished M.Sc. Thesis*, University of Lagos
- Odife. D. (1993). *The Nigerian Securities Market*, Malthouse Press Ltd, Lagos.
- Ogundina, A (2005). *Introduction to Finance*, Gideon Press, Ibadan.
- Ogundina A. (2006). *The Nigerian Banking and Financial Environment*, Immaculate Press, Ibadan.
- Ojah, K. & Karemera, (1999). Random Walk and Market Efficiency Tests of Latin American

- Emerging Equity Markets: A Revisit, *The Financial Review*, 34, 57-72.
- Olaoluniyi O. (2008). Efficient Market Hypothesis: A Seminar Paper presented at Lead City University, Ibadan, July.
- Olowe, R. A. (1996). Semi-Strong Information Efficiency of the Nigerian Stock Splits An unpublished PhD Thesis, University of Lagos.
- Olowe, R. A. (2011). Financial Management, Brierty Jones, Lagos.
- Osei, K. A. (1998). Analysis of Factors affecting the Development of an Emerging Capital Market: The Case of the Ghana Stock Market *African Economic Research Consortium Research* 76.
- Poterba, J. & Summers, L. (1988). Mean Reversion in Stock Price: Evidence and Implications, *Journal of Financial Economics*, 22, 27-59.
- Samuelson, P. (1965). Proof That Properly Anticipated Prices Fluctuate Randomly, *Industrial Management Review*, 6, 41-79.
- Samuelson, J. M. & Yacout, N. (1981). Stock Exchange in Developing Countries, *Saving and Development*, 4. 217-230.
- Working, H. (1960). Note on the Correlation of First Difference of Averages in a Random Chain *Econometrica*, 28, 916-918.