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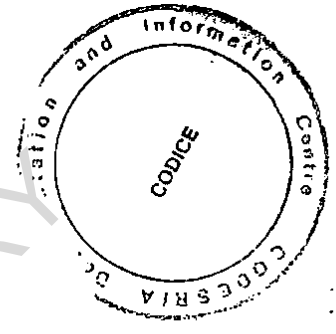
An Empirical Analysis of the Relationship between Yields and Prices of Quoted Securities in Nigeria

OCTOBER, 1992

AN EMPIRICAL ANALYSIS OF THE RELATIONSHIP BETWEEN YIELDS AND PRICES OF QUOTED SECURITIES IN NIGERIA



BY

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A DISSERTATION REPORT SUBMITTED TO
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D E D I C A T I O N

To the Otun-Obasewa of Ile-Ife, Chief J. O. OLAWANDE

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To my darling friends and loved ones who stood by when times were hard, I say thanks for reminding me that

"tough times never last but tough people do".

Finally, I accept the responsibility for any mistake that may be detected in this study.

OCTOBER, 1992.

OLAWANDE, OLUSEGUN OLAYERA
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CERTIFICATION

I certify that this study was carried by OLAWANDE, OLUSEGUN OLAYERA of the Department of Economics, University of Ibadan, Nigeria, under my supervision.

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ABSTRACT

The major objective of this study was to determine whatever relationships exist between yields and prices of quoted securities in the Nigerian Capital Market. When considering all quoted securities, the study observed the existence of a positive relationship.

However, considering all other quoted securities with the exception of equity stocks we observed a negative relationship.

To sum it up, the study discovered that the variations in Yields accountable to variations in prices of quoted securities is very small and statistical insignificant.

CHAPTER ONE

BACKGROUND INFORMATION

1.1 INTRODUCTION

Dudley (1980), Nwankwo (1980), Olawoyin (1980), Ojo and Adewumi (1982), Ajayi (1984), Odife (1985), Akinnifesi (1988) and Stores (1980) have in one way or the other tried to define the Capital Market in relation to its functions and operations. However, the overall effect of the capital market in the development of a nation's economy cannot, therefore, be overemphasised as assertations of Soyode (1989), Stores (1988), Drake (1985), Van Agtmael (1984) and Arowolo (1971) have shown.

Ranked among the top three in the Emerging stock markets, the phenomenal growth in the number of quoted securities on the Nigerian Stock Exchange (NSE) from 10 in 1961, to 49 in 1970 and 217 in 1990 representing a growth rate of about 390% and 342% respectively has not only increased the market capitalization, overtime, but also, the volume of activities and the participation of Nigerians on the

NSE. Moreover, this growth could be attributed to various factors, among which are; the economic millieu,various government legislations and the changing structure of the Nigerian economy.

In fact, it is worthy to note that the major government legislations that saw to the influx of quoted securities on the NSE were the Indigenization Decrees epitomised in the Nigerian Enterprises Promotion Decree of 1977 which extended the earlier one of 1972 and the promulgation of Decree 25 on Privatisation and Commercialisation which constitutes a key element of Nigeria's Structural Adjustment Programme (SAP) introduced in 1986.

Thus, a cursory look at empirical studies of major determinants of investment on the stock Exchange shows that majority of investors in Nigeria invest because of the rate of returns/ yields on their securities (Okigbo, 1980). Consequently, Dividend yields on equity stocks and Yields to maturity on Debenture stocks/bonds

represent the index of investment and Investment analysis.

However, there has been increasing agitations for an overhaul of the pricing technique used by the security and Exchange Commission (SEC) for quoted securities because they do not reflect the true market value of quoted securities. As a result, there is a wide spread discontention by investors and investment analysts that quoted securities on the NSE are grossly undervalued rendering the stocks "unattractive".

Yet, it has been assumed from time to time that there exists a direct and positive relationship between Yields and Prices of quoted securities. Howfar this is true and to what extent and magnitude has been an open question in Nigeria

Consequently, in the light of the aforementioned, this study would concentrate on trying to establish whatever relationship that exist between Yields and Prices of the quoted securities. This empirical

study would inform future government policy and guidelines on the pricing mechanism of the capital market because currently we are having a highly regulated structure under the auspies of the SEC.

1.2 PROBLEM STATEMENT

In many developed capital markets, studies have shown that there exist a positive relationship between Yields and Prices of quoted securities. However, because of the pricing mechanism used in Nigeria, one is not certain whether such relationsip exists. There is, therefore, the need to examine this relationship in the Nigerian case.

1.3 OBJECTIVE OF STUDY

The major objective of the study is to establish whatever relationship that exists between yields and Prices of quoted securities on the NSE. In the process of making that determination certain research questions are raised;

(i) Do prices of quoted securities really reflect their asset value in Nigeria?

(ii) Does the primary market pricing mechanism have any impact on prices and yields of securities on the NSE?

1.4 METHODOLOGY

The study would make use of data collected from secondary sources. The sources of such data would include, among others, various publications of Central Bank of Nigeria's (CBN) Economic and Financial Review, Daily Transaction records of all trading floors of the NSE, the International Financial Statistics (IFS) Yearbook, the NSE Factbook (various Issues) and the World Banks, World Tables (various Issues).

The data collected would include, among others, the average yearly yields and current market prices of quoted securities, and the yearly inflation rate across the country. The average yearly yields would be computed using the Daily transaction list of the NSE. Furthermore, only companies that payout

dividend on their respective equities would be considered for analysis. The inflationary rates would be compiled from CBN, IFS Yearbook and the World Tables (various Issues).

Moreover, the data would be analyzed using a regression model in order to enhance a parametric analysis of the relationship between yields and prices of securities on the NSE. Furthermore, a non-parametric analysis of the trend movement of the endogenous and exogenous variables would be undertaken.

The regression model specification is

$$Y_t = a_o + b_j P_t + C_j F_t + d_j D_t + E \ldots\ldots\ldots (1)$$

Notations:

where Y_t = Average yield of quoted securities at time, t.

a_o = Intercept of the Specification

b_j = Regression coefficient for the explanatory variable, P_t

P_t = Average price of quoted securities at time, t.

Cj = Regression coefficient for the explanatory variable, F_t

F_t = Average inflation rate for the year, t.

dj = Regression coefficient for the explanatory variable, D_t.

Dt = Dummy variable representing qualitative factors like company dividend policy at time, t.

E = Error term that captures all other factors capable of influencing yields of quoted securities.

This specification arises from a conglomeration of studies which tried to identify various factors influencing yields of quoted securities.

However, according to Olayemi & Olayide (1981), the direct use of regression coefficients is misleading and on the surface it might appear that relative magnitudes of regression coefficient could be used as measures of the relative importance of individual explanatory variables. Thus, Authur (1964) advocated the use of Beta coefficient which measures

the typical change in the explanatory variable where typical change is defined in standard deviation.

$$B_j = b_j \frac{Sxj}{s_y} \quad \ldots\ldots \quad (2)$$

Notations;

where B_j = Beta coefficient

b_j = Regression coefficient for the explanatory variable.

Sxj = Standard deviation of the explanatory variable, Xj.

Sy = standard deviation of the dependent variable, Y.

This would be used on the computed coefficients of the data.

1.5 LIMITATIONS

This study is limited to the first three decades of the operation of the NSE, that is, 1961 - 1991. Moreover, the findings of this study shall be limited to the data the researcher is able to collect.

1.6 DEFINATION OF TERMS

(i) YIELDS: In this study, Dividend Yields on quoted equities and Yields to maturity on Debenture/Government bonds would be referred to as yields.

(ii) PRICES: Prices of quoted securities refers to the current prices of the securities and not the par-value.

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CHAPTER TWO

THEORECTICAL FRAMEWORK AND LITERATURE REVIEW

2.1 THEORETICAL FRAMEWORK:

THE THEORY OF EFFICIENT MARKETS

Fama (1970) had advocated that the primary role of the capital market is the allocation of ownership of the economy's capital stock. He posited that

> "In general terms, the ideal is a market in which prices provide accurate signals for resource allocation; that is, a market in which firms can make production - investment decisions, and investors can choose among the securities that represent ownership of firm's activities under the assumption that security prices at any time "fully reflect" all available information".

In the light of this, a stock market in which prices always "fully reflect" available information is called "efficient".

The Expected Returns or "Fair Game" models try to specifically make definational statements

on what expected returns should be. One possibility would be to posit that equilibrum prices (or expected returns) on securities are generated as in the "two-parameter" sharpe (1964) - Linter (1965) world. This "two-parameter" sharpe (1964) - Linter (1965) world is really an extension of the portfolio models of Markowitz (1959) and Tobin (1958). The equilibrum expected return on a security depends on the extent to which the dispersion in the security's return distribution is related to dispersion in the returns on all other securities.

Consequently, the binding assumption is that the condition of market equilibrum can be stated in terms of expected returns. Therefore, all members of the class of these expected return theories can be described notationally as;

$$E(\tilde{P}_{j,t+1} / \Phi_t) = [1 + E(\tilde{r}_{j\ t+1}) / \Phi_t] P_{jt} \quad \ldots(1)$$

Notations:

where E = The Expected value operator

P_{jt} = The Price of security j at time t.

$P_{j,t+1}$ = Its price at t+1 (with reinvestment of any immediate cash income from the security)

$r_{j,t+1}$ = One-period percentage return

$$\left[\frac{P_{j,t+1} - P_{jt}}{P_{jt}}\right]$$

Φ = The General symbol for whatever set of information is assumed to be "fully reflected" in the price at t.

Above all, the tildes (~) indicate that P_{jt+1} and $r_{j,t+1}$ are random variables at t.

The equation above indicates that the expected return equilibrum value $E(\tilde{r}_{j,t+1}/\Phi_t)$ is projected on the basis of the information Φ_t. This implies that whatever expected return model is assumed to apply the information in Φ_t is fully utilized in determining equilibrum expected returns. And this is the sense in which Φ_t is "fully reflected" in the formation of the price P_{jt} (Fama, 1970).

Furthermore, the possibility of trading systems based only on information in Φ_t that have expected profits or returns in excess of equilibrum expected returns are ruled out by the empirical implications of the information set Φ_t

if X_{jt+1} = The excess market value of security j at time t+1

and $Z_{j,t+1}$ = The return at t+1 in excess of the equilibrum expected return projected at t

Then,

$$X_{j,t+1} = P_{j,t+1} - E(P_{j,t+1} / \Phi_t) \quad \ldots\ldots(2)$$

Thus, $E(\tilde{X}_{j,t+1} / \Phi_t) = 0 \quad \ldots\ldots\ldots\ldots (3)$

Let $Z_{j,t+1} = r_{j,t+1} - E(\tilde{r}_{j,t+1} / \Phi_t) \quad \ldots\ldots\ldots(4)$

Then, $E(\tilde{Z}_{j,t+1} / \Phi_t) = 0 \quad \ldots\ldots\ldots\ldots\ldots (5)$

From the foregoing, $X_{j,t+1}$ represents the difference between the observed price and the expected value of the price that was projected at t on the basis of the information Φ_t. Similarly, $Z_{j,t+1}$ is different from $r_{j,t+1}$ in terms of the fact that it reduces $r_{j,t+1}$

by its expected return equilibrum value projected on the basis of the information Φ_t.

Let

$$\alpha(\Phi_t) = [\alpha_1(\Phi_t), \alpha_2(\Phi_t), \ldots, \alpha_n(\Phi_t)] \quad \ldots (6)$$

be any trading system based on Φ_t which tells the investor the amount $\alpha_j(\Phi_t)$ of funds available at time, t, that are to be invested in each of the n available securities. Thus, the total excess market value at t+1 (denoted as V_{t+1}) generated is

$$V_{t+1} = \sum_{j=1}^{n} \alpha_j(\Phi_t) \left[r_{j,t+1} - E(\tilde{r}_{j,t+1}/\Phi_t) \right] \quad \ldots (7)$$

Thus, from equation (5)

$$E(\tilde{v}_{t+1}/\Phi_t) = \sum_{j=1}^{n} \alpha_j(\Phi_t) E(z_{j,t+1}/\Phi_t) = 0 \quad \ldots (8)$$

The submartingale model states that the expected value of the next period's price, as projected on the basis of the information Φ_t equal to or greater than the current price.

Consequently, $E(\tilde{r}_{j,t+1} / O_t) \geq 0$ ..... (9)

The non-negativity implies that trading rules based only on the information in Φ_t cannot have greater

expected profit. However, negative equilibrum expected returns for some securities are quite possible.

Above all, Sharpe (1964) - Linter (1965) shows that equilibrum expected returns may be negative. For instance, a security whose returns on the average move opposite to the general market is particularly valuable in reducing dispersion of portfolio returns.

Nevertheless, some authors have suggested that certain asset prices are not rationally related to economic realities. For instance, Brainard et al (1980) found that the current low level of the stock market could not be rationally related to economic realities. Hence, in United States of America, Modigliani & Cohn (1979) suggest that the stock market is very substantially under-valued because of inflation illusion. Similarly, Summer (1982) makes the same claim for bond prices.

However, the sufficient conditions for capital market efficiency are that in such a market, the current price of a security obviously must "fully relect" all available information, thus, it assumes that there are no transactions cost in trading securities, all available information is costlessly available to all

participants and all agree on the implications of current information for current prices and distributions of future prices of each security.

2.2 The Historial Background and structural Framework of the Nigerian Capital Market

Olawoyin (1980) rightly asserted that the Capital Market of any country constitutes a major instrument for the promotion of the economic well-being of its citizens. Accordingly, what happens there cannot, therefore, be totally ignored by the government of such a country. The aforementioned ascribes to the fact that the genesis of the NSE which epitomizes the Nigerian Capital Market started in 1960 with the government's initiative.

Thus, three principal factors accounts for governments interests, these include;

(i) the attainment of political Indiependence which created the need to mobilize capital for embarking upon development programmes;

(ii) the need for the repatriation of funds invested abroad as a means of strengthening the balance of

payment position which started to deteriorate since the latter part of 1950;

(iii) government needed capital market debt instruments to finance budget deficits which had started to accumulate since 1958. (Ojo and Adewumi, 1982)

Consequently, the establishment of the Lagos Stock Exchange (LSE) in 1960 was enhanced. This was incorporated under the Companies Ordinance as a non-profit making organisation and as an association limited by guarrantee with an initial capital of then Ten Thousand Naira. Moreover, its functions were set out in the Memorandum of Association. By 1961, it had listed ten (10) securities with one stock broker and one trading floor.

According to Ajayi (1988), the real concept of Capital Market started in 1946 with the floation of a local loan to the tune of £300,000 (₦600,000) by the British Government in Nigeria. However, the drive to further institutionalize a capital market in Nigeria was made in 1959 when the Central Bank of Nigeria (CBN) floated the 1st National

Development Loan Stock on behalf of the Federal Government of Nigeria.

In brief, Akinnifesi (1988) has outlined the functions expected of any capital market to perform. These include;

(a) encouraging the mobilization of savings for the purchase of the securities newly issued by government or private enterprises;

(b) promotion of efficient allocation of resource among competing sectors for enhanced economic growth;

(c) decentralization and allocation of the ownership of assets in the society;

(d) improving the opportunities for businesses to secure long term capital as opposed to short term capital;

(e) ensuring a link between the domestic and international capital market thus enhancing the opportunity for generating increased economic growth.

In addition to the aforementioned, a capital market also provides indices of the level of aggregate economic activities in an economy and offers individuals

and institutions avenues to buy and sell the shares of quoted companies.

Besides, to perform these functions the capital market must be efficient and a capital market is said to be efficient if security prices "fully reflect" all available information (Fama, 1970). This would be so when the market contains enough buyers and sellers, and information is disseminated fast enough to the extent that no single investor or group of investors can realize excess profit (returns) through monopolized information.

To assume a nationwide status, in 1977, the LSE got transformed into the NSE. Six branches have so far been established with each branch having its own trading floor. The branch in Lagos (1961), Kaduna (1978), Port Harcourt (1986), Kano (1989), Onisha (1990), and Ibadan (1991). Arrangements are being made to open a branch in Abuja. Lagos is the head office of the Exchange.

Alile and Anao (1986) have shown that the NSE is governed by a council (Board) of the Security

Exchange, which is the highest policy making body of the Stock Exchange. The Council is presided over by a President and the administration of the Stock Exchange is vested in the Director-General.

Similarly, the Security and Exchange Commission (SEC), is the apex regulatory body for the NSE. Tracing its existence, the report of the SEC for the period of 1977 to 1979 shows that the Capital Issues Committee (CIC) came to existence in July, 1962, and it was essentially an ad-hoc committee which lacked any legal backing in terms of an Act or a Decree to enforce its decisions.

After the Nigerian civil war in 1970, however, the Government's economic and investment policies motivated institutional as well as individual savers to invest in different securities and enterprises. In order to facilitate the indigenisation process, the Capital Issues Decree, 1973 was promulgated to make the Capital Issues Commission supersede the ad-hoc CIC. The decree empowered the commission to determine;

(a) the price at which shares or debentures of a company are to be sold;

(b) the timing and amount of sale;

(c) in the case of a company whose securities have been quoted on any recognized stock exchange, the price, timing and amount of any supplementary offers for sale.

Conseqeuntly, in order to obviate the short comings of the Nigerian Enterprises Promotion Decree, 1972, the Federal Government promulgated the Nigerian Enterprises Promotion Decree, 1977. Hence, a heavy workload was anticipated in the second phase of the indigenization exercise that there was the need for a powerful general overseer to survey the country's capital market.

In the end, the committee on the Nigerian Financial system recommended that the CIC be replaced by the Nigerian Securities and Exchange Commission (SEC) which would be the apex institution of the Nigerian capital market. Thus, it was established under the SEC Decree of 1979 (re-enacted as Decree No. 29 of 1988). Accordingly, Ogwumike and Omole (1992) posited that the functions of the SEC are mainly regulatory and developmental in nature.

The SEC determines the price, amount, and time at which securities of a company are to be sold either through offer for sale or subscription in the primary market. In a nutshell, it creates the necessary atmosphere for order, growth, and development of the capital market. Soyode (1989), therefore, contends that the institutions that make up the capital market function to ensure that there is adequate long-term fund to service the need of the economy because their action affects the aggregate level of investment and thus, employment, output, prices and real income in an economy.

A cursory look at the growth in the number of quoted securities on the NSE shows a phenomenal increase overtime (See Table 2.1) in the past three decades. This table shows the growth trend in the number of listed securities on the NSE (see Fig 2.1). As at 1991, however, it seems that the industrial stocks would tend to be increasing more than that of the government stocks in time to come.

Table 2.1: Growth in the number of Listed Securities on the NSE

YEAR	GOVT STOCK	% GROWTH	IND STOCK	% GROWTH	EQUITIES	% GROWTH	TOTAL
1961	6	-	1	-	3	-	10
1965	17	183.3	5	400.0	6	100.0	28
1970	30	76.5	6	20.0	13	116.6	49
1972	34	13.3	9	50.0	22	69.2	65
1975	42	23.5	7	-22.2	36	63.6	85
1980	54	28.6	12	71.4	91	152.7	157
1981	56	3.7	14	16.6	93	2.1	163
1982	57	1.8	18	28.6	93	0	168
1983	61	7.0	25	38.8	92	-1.1	178
1984	56	-8.2	27	8.0	92	0	175
1985	57	1.8	28	3.7	96	4.3	181
1986	58	1.8	29	3.6	99	3.1	186
1987	54	-6.9	31	6.9	100	1.0	185
1988	51	-5.6	35	12.9	102	2.0	188
1989	47	-7.8	40	14.3	111	8.8	198
1990	43	-8.51	43	7.5	131	18.0	217
1991	40	-2.32	57	9.3	142	3.8	239
PERIOD AVERAGE	42	18.9	22.1	41.8	77.4	34.0	144.6

Source: Calculated from NSE and CBN, Annual Report and Statement of Accounts (Various Issues)

Fig. 2.1

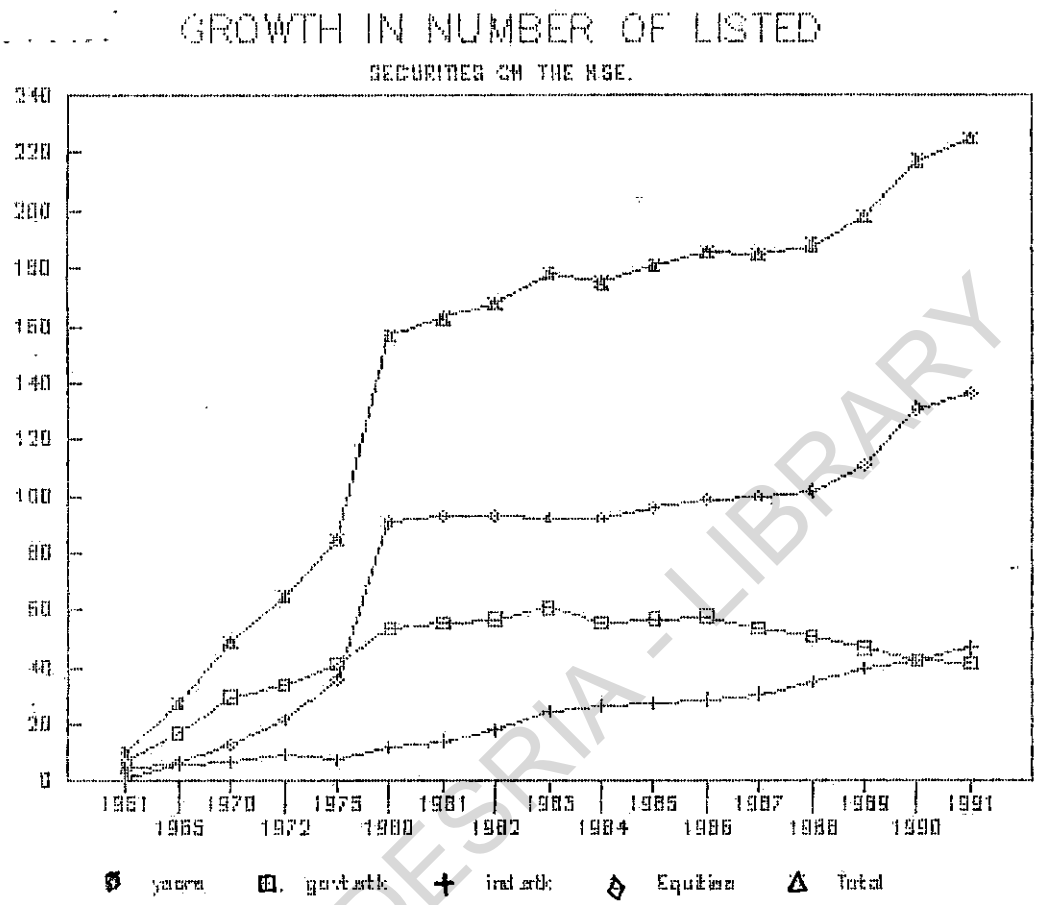
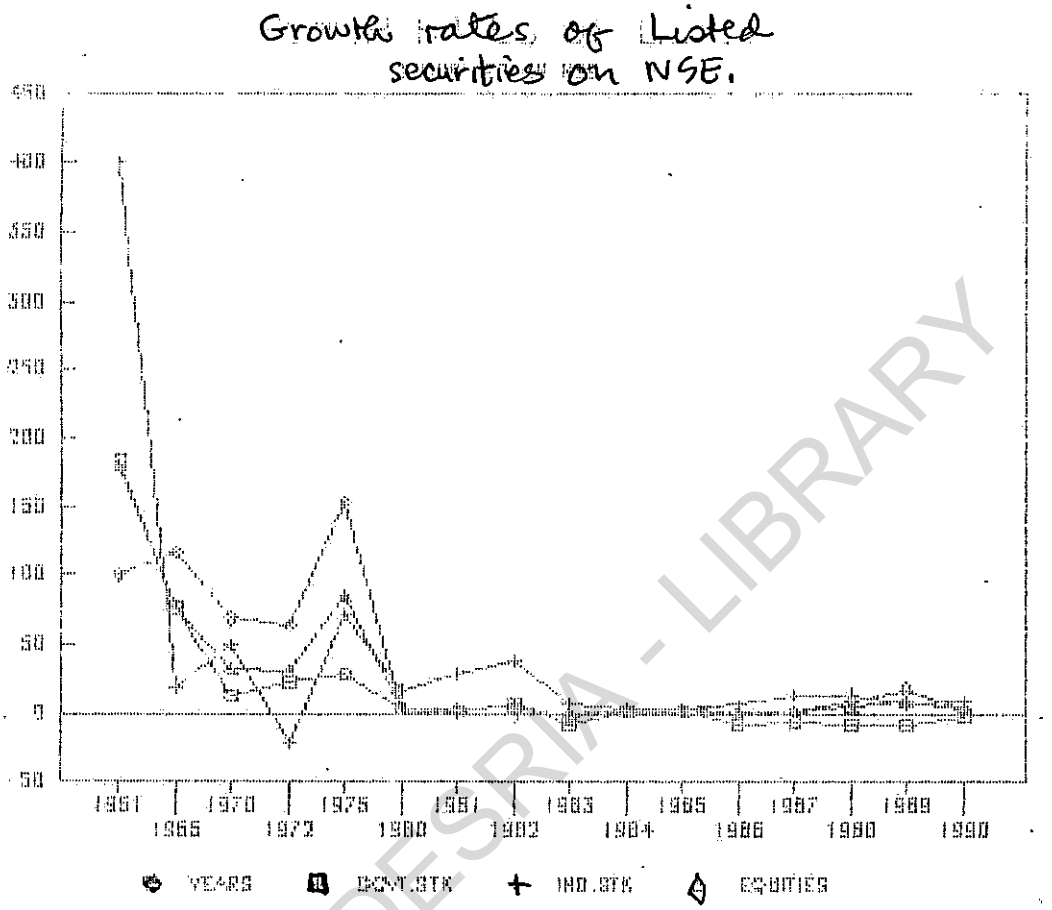


Fig. 2.2



Moreover, Table 2.2 shows the market capitalization on the NSE between 1980 and 1991. This has been increasing overtime (See Fig. 2.3). The

Table 2.2: Market Capitalization on the NSE between 1980 and 1991 (in ₦' billions)

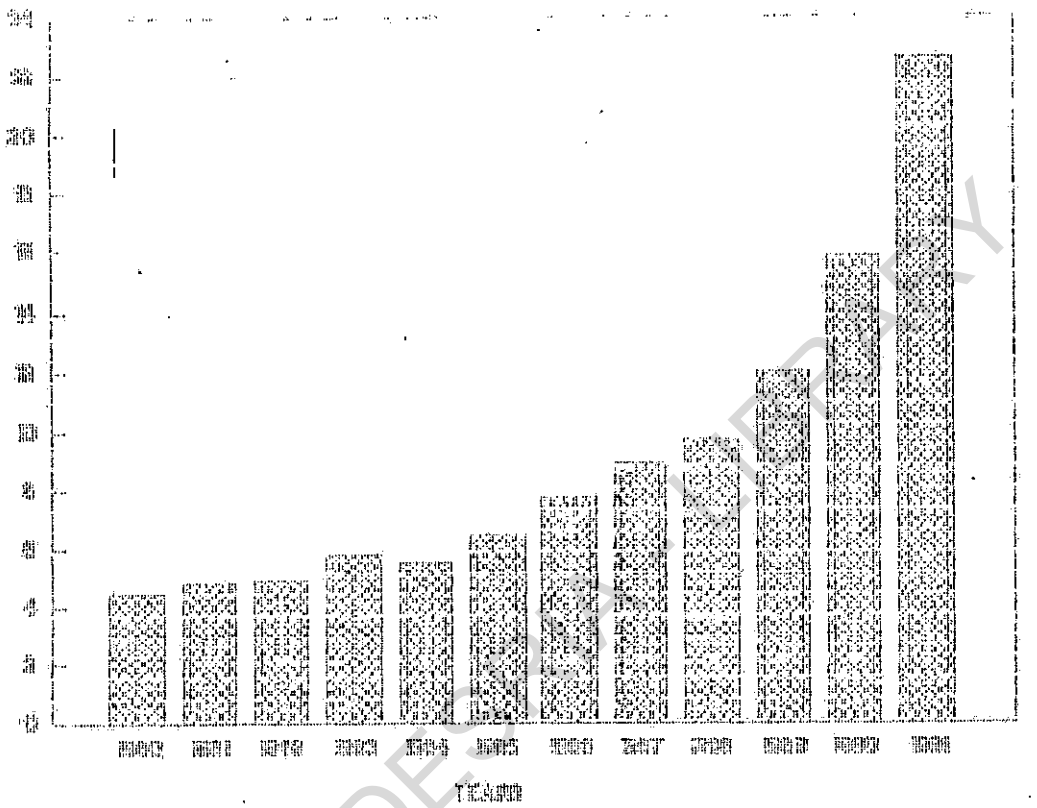
YEAR	MARKET CAPITALIZATION
1980	4.45
1981	4.84
1982	4.92
1983	5.8
1984	5.5
1985	6.4
1986	7.7
1987	8.9
1988	9.7
1989	12.0
1990	15.9
1991	22.6

Source: The NSE, Factbook, 1992.

Market Capitalization represents the value of a firm as determined by the market price of its issued and outstanding common stock.

Fig. 2.3

Market Capitalization Trend



However, using market capitalization, number of securities listed, average daily turnover and the percentage of total market capitalization accounted for by the top ten (in terms of market shares) companies as the criteria of comparison, Akinnifesi (1988) concluded that the Nigerian Capital Market is "thin", or put differently, relatively small to those of USA, Japan, Hongkong, Singapore, South Korea, and Western Germany. Besides, Ogwumike and Omole (1992) sighted studies of Nemedia (1982), Ike (1984) and Gill (1982) on the Nigerian securities market that supported the population of Akinnifesi (1988) on the narrowness of the market.

In fact, Akinnifesi (1988) stressed that considering the market capitalization of Nigerian equities, it is seen that the market can easily be described as oligopolistic. This is so because the top ten Nigerian companies (which are foreign multinational organizations) quoted on the NSE together accounted for a preponderent 52% of total market capitalization in 1987, while the remaining 92 companies accounted for the rest.

Conversely, Peng (1983) has shown that the Stock Exchange of Singapore which started operations in 1973 has on its list about 288 companies as at December, 1982.

Nevertheless, the tremendous imports which the Stock Exchange introduces to the capital formation and investment process and ultimately to the promotion of individual and national wellbeing and prosperity makes it seem today a vital component of the total strategy for promoting national economic development (Olawoyin, 1980).

Consequently, Nigeria, being the world's leading black nation whose economy represents about 40% of the entire African economy (excluding South Africa) deserves a more efficient capital market if it is to deliver the nation into the mainstreams of the world economy (Odife, 1985).

2.3 Valuation and Pricing of Quoted Securities

Kadiri (1983) reiterated that one of the major determining factors that influences investors in their choice of which type of security to buy is the price of the security. He deduced that it is only after the

price of a security is known that its relative profitability in terms of returns on the investment could be determined.

For instance, Ariyo and Olowo-Okere (1991) attributed the relatively poor performance of the NSE to the regulatory activities of the SEC because of its pricing policies which many firms considered to be very conservative and influenced by a high dosage of subjectivity. For example, the Savannah Bank in 1982 protested and withdrew its application for listing on the NSE because of its dissatisfaction with SEC's valuation. Consequently, we ask if the pricing and valuation of quoted securities undermine their true value in Nigeria?

In retrospect, we know that the genesis of the SEC valuation function dates from the abuse under the 1972 - 74 Indigenization exercise when valuation of complying private companies was left solely in the hands of the issuing houses and the affected Companies themselves. The result as highlighted in the Industrial Enterprises Panel report was widespread cases of overvaluation and consequent losses to investors (Otiti, 1989).

The SEC through its enabling decree of 1988 is vested under Section 7(1) with performing its price setting role, endeavour to ensure that the price finally arrived at is fair to both sides i.e. the buyers and the sellers, hence price determination is based on full disclosure of relevant material facts.

The Report of the Securities and Exchange Commission (1977-1979) shows that the SEC adopts two basic approaches for the valuation of shares on the NSE. They are;

(i) the net asset value and

(ii) the maintainable annual profit

To illustrate, the net asset valuation is computed as the net asset per share as a proxy for the value of the firm. The value per share is ascertained after the adjustments by substracting the total liabilities from the total assets and dividing the difference by the number of outstanding shares as shown in the paid-up capital. The commission use the information in the balance sheet for the purpose of share valuation on net asset basis. It excludes such

fictions assets as;

(a) Goodwill,

(b) Formation expenses not yet written off,

(c) Adverse balance on Profit and Loss Account not yet written off,

(d) Advertising and publicity expenses not yet written off.

The commission has been very sceptical of revaluations as such revaluations neither enhance the value of the asset to the business nor in any way improve its profitability by the mere fact that the book value has been raised. Moreover, if the property were to be sold on a break-up basis (i.e. assuming the existence of mergers and acquisition or a situation where any sale is to result in a change of ownership and control of the affected enterprise) there would be the burden of the Capital Gains Tax which would have to be paid.

Akamoikhor (1989) tried to sum up the Maintainable Annual Profit basis of the SEC. He posited that the average profit is capitalised using the expected rate

of return which the commission graduates to reflect the nature of business. To find the value per share, the capitalised profit is divided by the number of shares taking into account both the existing issue and any proposed new issue.

Ariyo and Olowo-Okere (1991) have illustrated that the expected price (P_o) is then determined by dividing either the net per share or the average profit derived by a capitalisation rate. Thus;

$$Po = \frac{\text{Net Asset per share}}{\text{Capitalisation rate}} \quad (1)$$

or

$$Po = \frac{\text{Average Profit per share}}{\text{Capitalisation rate}} \quad \ldots\ldots\ldots (2)$$

The SEC usually prefers the Maintanable Annual Profit (MAP) approach because it seems to reflect better the firm's future earning power. The average profit is capitalised using the expected rate of return which the commission graduates to reflect nature of business as follows;

Agriculture	-	10%	to	12%
Banking and Finance	-	12½%	to	17½%
Manufacturing	-	17½	to	20%
Commercial	-	20%	to	25%
Services	-	25%	to	30%
Property	-	12½%	to	15%

For instance, Joda (1985) tried to analysis how the SEC valuate shares using the two approaches. The analysis was in respect of a manufacturing company in the brewery industry which was quoted on the NSE. He assumed the company was just applying to the SEC for share valuation to enable it get quoted on the Stock Exchange. Furthermore, he assumed that the company was not raising any additional fund for the purpose of this valuation exercise. All the figures used were actual figures obtained from the company's audited accounts for the period 1980 - 1984

Valuation on the Basis of Net Assets As At 31st December, 1984

	1984 (₦'000)	1983 (₦'000)
Fixed Assets:		
Plant and Machinery	58,138	65,536
Land and Building	83,184	84,410
Vehicles, Furniture and Equipment	5,750	7,582
Total Fixed Assets	147,068	157,528
Current Assets:		
Stocks	36,607	49,518
Debtors & Payment in Advance	11,323	13,356
Bank and Cash Balances	106,077	73,816
Total Current Assets	154,007	136,690
Total Asset	301,075	294,218
Less Liabilities:		
Trade, Other Creditors & Accruals	55,376	80,681
Income Tax	49,593	47,144
Dividend unpaid/unclaimed	19,444	16,895
Dividend Proposed	17,156	13,725
Total Liabilities	141,969	158,445
Net Assets	159,106	135,773

Paid-up share capital of the company is ₦57,188,000 with a nominal value of 50K each as at 31st December, 1983 and 1984.

Thus, the Value per share $= \frac{₦(159,106,000)}{114,376,000} = ₦1.39$

and $= \frac{₦(135,773,000)}{114,376,000} = ₦1.19$

per share for 1984 and 1983, respectively using the net asset basis of the SEC.

However, using the basis of maintainable Annual Profit (MAP) for the same company, Table 2.3 shows the outlay of profit aftr tax for the period of five years before computing the simple average for the same period to get the Maintainable Annual Profit (MAP).

Table 2.3 Valuation on the Basis of Maintainable Annual Profit Year Ended 31st December

YEAR	PROFIT BEFORE TAX	TAX	PROFIT AFTER TAX
1980	40,304	18,000	22,304
1981	38,532	12,776	25,756
1982	53,887	23,500	30,387
1983	95,652	46,250	49,402
1984	104,158	48,800	55,358
PERIOD AVERAGE	6506.60	29865.20	36641.40

The Maintainable Annual Profit (MAP) = ₦36641.4

The Expected Rate of Return = 20%

Capitalising the MAP at 20% = ₦183,207,000

Paid-up share capital of the company is ₦57,138,000 divided into 114,376,000 Ordinary shares of 50K each.

∴ Value per share = ₦ $\frac{(183,207,000)}{114,376,000}$

= ₦1.60K

The Average earnings after tax (based on the period average profit after tax) per 50K ordinary share

= ₦$\frac{(36,641,400)}{114,376,000}$ = ₦0.32k

Using the pre-determined capitalisation rate of the SEC, this company, which is a manufacturing one falls under the 20% category.

Above all, the commission undertakes a series of ratios and statistical analysis to reflect past management efficiency and business viability over a period. Such analysis include;

(a) rate of growth of turnover, profit (before and after tax) and dividends;

(b) growth of shareholders funds, capital employed and return on capital employed (pre and past tax) (note unpaid dividend is included in capital employed);

(c) liquidity ratios for the period under consideration;

(d) gearing ratios for the period under consideration;

(e) comparative incomes (earning per share);

(f) earning yield.

The commission considers, also, a number of criteria that hinge on the future prospects of the enterprise before deciding on a price for the security. For instance, using our hypothetical manufacturing firm the rate of growth in the Turnover, Pofit before tax, Profit after tax, Dividend is given below in Table 2.4

Table 2.4: Rate of Growth 1980 - 1984

YEAR	TURNOVER N'000	GROWTH RATE	PROFIT BEFORE TAX	GROWTH RATE	PROFIT AFTER TAX	GROWTH RATE
1980	174,207	-	40,304	-	22,304	-
1981	187,636	7.7	38,532	(4.4)	25,756	15.3
1982	241,097	28.5	53,887	40.0	30,387	18.0
1983	317,387	31.6	95,652	77.5	49,402	62.5
1984	322,128	1.5	104,158	8.9	55,358	12.1

	DIVIDEND ₦'000	PAID UP CAPITAL ₦'000	RATE OF DIVIDEND TO PAID UP CAPITAL (%)
1980	13,176	36,600	36.0
1981	15,428	45,750	33.7
1982	18,038	45,750	39.4
1983	29,574	57,188	51.7
1984	32,025	57,188	56.0

Table 2.5: Share holders Intrest 1980 - 1984

YEAR	PAIDUP CAPITAL (₦'000)	RESERVES (₦,000)	TOTAL ₦'000)	UNPAID DIVIDEND (₦'000)	CAPITAL EMPLOYED (₦,000)
1980	36,600	56,664	99,741	-	99,744
1981	45,750	57,846	103,596	-	103,596
1982	45,750	70,195	115,945	-	115,945
1983	57,188	78,585	135,773	-	135,773
1984	57,188	101,918	159,106	-	159,106

	RATE OF PROFIT(%) BEFORE TAX TO CAPITAL EMPLOYED	RATE OF PROFIT AFTER TAX TO CAPITAL %
1980	40.4	22.4
1981	37.2	24.9
1982	46.5	26.2
1983	70.4	36.4
1984	65.5	34.7

Table 2.6: Current Ratio (Liquidity Ratio)

YEAR	1984	1983	1982	1981	1980
CURRENT ASSETS	154,007	136,690	84,770	40,843	63248
CURRENT LIABILITY	141,969	158,445	129,940	76,978	67117
SURPLUS(DEFICIT)	12,038	(21755)	(45,170)	(36135)	(3869)
CURRENT RATIO	1.1	0.86	0.65	0.53	0.94

Whenever the working capital is positive, the current ratio will be greater than 1. Thus, from

1980 - 1983, the declining ratio might be a sign of deteriorating financial situation. From the forgoing; indications of relative growth over the period under review with the aforementioned parameters tend to indicate that the company growing overtime.

Furthermore, Otiti (1989) has shed more light on how the SEC evaluates corporate debenture and Government bonds. Said he on the valuation of Corporate debenture "in addition to the usual document required in case of debenture issue is the TRUST DEED". This contains details of the terms of the conditions of the issue as it relates to the interest of the prospective and existing investors. Additional compilation is also required to show the effect of servicing cost of the debenture (i.e. interest payment) on the future earnings of the enterprises.

Before any state Government (SG) of the Federation can raise bonds on the Nigerian Capital market it has to fulfil some conditons. Among these are that, the state Government must formulate a Decree or Edict (as the case may be) to back up the States desire to issue bonds on the Stock Exchange. The request, however, for funds from the capital market must be tied to a project. The

Commission (SEC) considers among others;

(i) the profile of the state, showing population, major industries, their locations etc;

(ii) statement of assets and liabilities of the state for five years immediately preceeding the year of application;

(iii) sources of revenue for the preceeding five years indicating the percentage contribution of each source to total revenue;

(iv) a State Law (edict) authorising either the state or its agency to borrow from the capital market;

(v) a feasibility report on the project to be financed;

(vi) a draft Trust Deed covering the issues;

(vii) provision for a sinking fund to facilitate redemption of the bond;

(viii) evidence of conversion to a public enterprise in case where the beneficiary being state agency by incorporating is a private company;

(ix) the consent of the Federal Minister of Finance (pending promulgation of the decree on state borrowing) on the issue.

Once the project is adjudged viable and all conditions listed above are compiled with the SEC usually gives its approval for the bond floatation.

Accordingly, experiences in some other countries have shown that the pricing function is performed either directly or indirectly by government regulatory bodies. In Turkey, there is the Capital Market Law which created a Capital Market Board. In Singapore, and Jordan there is the securities Industry Act, 1970 and the Provision Law N 31 of 1976 which created the Amman Financial Market respectively. In addition, in Malaysia, like Nigeria there is a Capital Issue Committee (CIC) with similar functions (Negara, 1984).

Ariyo and Olowo-Okere (1991) indicated in their study that the allegations on the SEC's price determination as being subjective and unfair to be unwarranted. In fact, in connosance with Hogarth (1980) and Libby (1981) Judgement based on intuition or subjective processing of information and environmental factors are not necessarily sub-optimal. Moreover, in the choice of

evaluation model, the SEC was biased in favour of choosing that which minimizes the trade-off between the profit-maximising objectives of the owners of the business applying for quotation and economic development needs of the nation. This type of motivation bias affecting judgements under uncertainty is analogous to studies of Tversky andKahnema (1974) and Spetzler and Holstein (1975).

Akamiokhor (1989) and Akingbohungbe (1985) have both indicated that given the imperfection prevalent in the Nigerian Capital Market, one can regard the SEC pricing of new issue as being apt. An underpriced new issue might result in over-subscription and consequently, in the immediate "jump" in the price atttributed to the security on the secondary market and vis-visa for an overpriced new issue.

Thus, Rock (1986) in his study "why New Issues Are Underpriced" presented a model for initial public offering. The argument depends upon the existence of a group of investors whose information is superior to that of the firm as well as that of any other investors. If

the new shares are priced as their expected value, these privileged investors crowd out the others when good issues are offered and withdraw from the market when bad issues are offered.

2.4 Determinants of Stock Prices and Yields

Francis and Archer (1971) identified the chartists, Fundamentalists and the Random walk theorists as the leading analysts on the behaviour of stock Prices. The technical analysts (chartists) contend that all information about a stock is subsumed into the patterns traced out by its price and, or volume movement. Conversly, the fundamentalist investigate and interpret stock prices in relation to fundamental financial economic and management data. Accordingly, the random-walk theorists opine that the short term prices changes and the changes in the rate of return are basically like a series of random numbers that follow no predictable pattern.

Consequently, Darst (1975) indicated that stock prices are determined by the level of output, income, employment and other measures of activity in a national

economy. On the other hand, Goff (1982) identified political economic and emotional factors that are both quantitative and qualitative in nature as factors affecting prices of securities. He furtherly stressed that government stockprices which are backed up by the resources of the whole nation are affected by the prevailing economic conditions.

Lorie and Hamilton (1973) noted that the expected level of income, the degree of uncertainty of the expected income and the rate of which the stream of future income is discounted are the determinants of the value of a share.

On the other hand, Darst (1975) also indicated and identified the quality of the stock, sinking fund, call provision and tax as the predominant factors influencing a security's yield to maturity.

Studies of Fisher and Lorie (1964), Hickman (1960) and, Fisher and Weil (1971) have shown that the mean corporate stock yields greatly exceed mean corporate bond yields. Based on this, Ellis (1971), Keller (1968) and Kemerer (1965) in their respective studies contend

that this indicates that stocks are superior to bonds. In trying to analyse this further, Norgaard (1974) tried to test the hypothesis that the higher mean yield of stocks is offset by the lower variance of yields of bonds i.e. bonds and stock in a risk, portfolio are substitutable investments. The result of this test, however, indicated that the probability of obtaining higher yields with a portfolio or a mixed portfolio of bonds and stocks relative to an all stock portfolio is extremely small and approaches zero as the holding period increases beyond a year. Thus, the result suggests that corporate bonds are not a satisfactory alternative to stock in a security portfolio.

Peerce (1985) defined current yield as the annual return on a security calculated as the percentage of its current market price. Nevertheless, Curry and Winfield (1987) observed that the normal pattern of returns is for the yield on bonds to increase relatively to the length of the period of redemption. However, occasionally, short-term yields are higher than long term yields.

Thus, empirically observed bond yield to maturity curves have consistently been found to become flat for long maturities (Durand, (1947) and Malkiel (1966)). Consequently, Lutz (1940) has said that the flattening of yield curves is the resultof constant long-term forward rates for long maturities. However, Livingston and Jain (1982) presented a theoretical proof that flattening of yield curves for par bonds is inevitable for long maturities that implied that behavioral explanations of flattening are unnecessary. This proof and the result, thereof, formalized the statement of Schaefer (1977), that constant coupon yield curves "are .... asympolically horizontal no matter what shape the spot rate (zero coupon rate) curves adopts".

Various formulae have been avocated for the calculation of annual yield to maturity. Tracing the historical evolution involving M's (1855), Todhunter (1897), Henderson (1907), Craig (1927) and Worger (1967) approximations are worthy to be noted. However, Nwankwo (1980) formulated a simple formula;

$$Ym = \frac{I + PV - CP}{N} \quad \ldots\ldots (1)$$

However, Kadiri (1983) in his study used another simple formula, which would be used in this study ;

$$Ym = \frac{I + \frac{PV - CP}{N}}{\frac{Cp + Pv}{2}} \quad \ldots\ldots(2)$$

Notations:

where YM = The approximate yield to maturity
I = Annual amount of interest
PV = Par value of bond
CP = Current price of bond
N = Number of years remaining to maturity

For instance, the Federal Republic of Nigeria's 14th Development stock for the year 2000 was quoted on the Stock Exchange in 1991 at a coupon rate of 6%, a nominal value of ₦100 and current price of ₦62.44 with 9 years to maturity

Thus, I = 6%
PV = 100
CP = 62.44
N = 9

$$Ym = \frac{(0.06 + \frac{100 - 62.44}{9}}{\frac{(62.44 + 100)}{2}}$$

Ym ≈ 5.15%

2.5 Relationship Between Yield and Stock Prices

Weston (1956) observed that there is a close relationship between dividend and stock Prices. To this, Brigham (1980) noted that the dividend yield is relatively low while capital gains is relatively high during periods of supernormal growth in stock Prices and while the supernormal growth of the yields at the end is relatively high while capital gain is low.

Lohneiss (1984) using a cross sectional data of about 55 major U.K. companies observed that on the average low profitability is accompanied by a high payout ratio. Thus, according to Black and Scholes (1974) if a corporation could increase its share price by increasing (decreasing) its payout ratio, then many corporations would do so which would saturate the demand for a higher (or lower) dividend yields. All these studies imply a positive relationship between yields and prices of quoted securities.

Moreover, Graham and Dodd (1951) argued that a company can increase the value of its shares (Price), if and only if, it increases its payout ratio, thus

the yield would increase. This is because investors prefer a dollar of dividends to adollar of capital gains because "a bird in hand is worth more than one in the bush". Consequently, there exists a positive relationship between prices and yields. Black and Scholes (1974) supported this, by saying that, it is possible that a decrease in a coporation's dividend will cause a temporary fall in the stock prices because of the "information effect" of changes in dividend. This invariably affects the dividend yield which is directly related to stock prices.

Harkavy (1953) posited that while common stock prices very directly with dividend payout ratios at any given time, however, their degree of appreciation over a period of time is associated with the proportion of earnings which are retained.

However, Buse (1970) proved correctly that if the expected one-period interest rates are monotonically decreasing (increasing) an increase in the magnitude of the coupon on a bond will increase (decrease) the internal rate of return (bond yield).

Latane (1954) in his paper "Price changes in Equity Securities" concluded that these exists a positive relation between Dividend and price. This implied a positive relationship between Dividend Yield and Equity prices.

Furthermore, Litzenberger and Ramaswamy (1982) showed that there is a positive and non-linear relationship between common stock returns and expected dividend yield. This support Rosenberg and Marathe (1978) study that showed that there was a positive and significant relationship between dividend yields and common stock returns. Thus, Green (1990) provided some theoretical support for the position that dividend yield effects would be spread over time.

In addition, Shiller (1981) noted that evidence suggests that long term bond yields are too volatile to accord with simple expectation models of the term structure of interest rate. However, Fama (1981) has indicated that there is evidence that real stock returns are positively related to measures of real activitiy.

Consequently, Blume (1980) in his paper examined the relationship between stock returns and dividend yield and observed some evidence that the market place may be misassessed. The relative growth in dividends of high yielding stock does not really warrant the conclusion that the market is irrational.

Mills and Stephenson (1986) in analysing the behaviour of various government stocks using monthly data over the period 1972 - 1984 found out that real returns vary with movement in nominal and real variables and in particular they are negatively correlated with the yield to maturity and positively related to short-term interest rates, inflation and unemployment.

Furthermore, West (1988) has shown that a standard efficient market model states that a stock price equals the expected present discounted value of its dividends with a constant discount rate. Fama and French (1989) observed that expected returns on common stocks and long terms bond contain a term or maturity premium that has a clear business cycle pattern. To this, Che et al (1986) posited that as financial theory suggested the following

macroeconomic variables systematically affect stock market returns; spread between long and short interest rates, expected and unexpected inflation, industrial production and the spread between high and low grade bonds.

2.6 Relationship between Yields and Inflation:

Linter (1973), Nelson (1978), Jaffe and Mandlkar (1976), Fama and Schwert (1977) observed that both expected and unexpected rates of inflation are negatively related to common stock returns using monthly, quarterly and annual data from the United States.

Saunders and Tress (1981) in analysing the relationship between Australian Stock returns and inflation over the period 1965-1979 observed empirically that nominal stock returns and inflation are related in a significant negative fashion. The Grangers and Sims test of causality between inflation and stock returns indicated a mainly unidirectional relationship. Thus, Danthine and Donaldson (1986) also presented a supportive evidence that explains why real rates of returns appear negatively correlated with the rate of inflation.

Furthermore, Cohn and Lessard (1981) in their study on the effect of inflation on corporate profits and stock prices observed that there exists a negative relationship. Hence, Fama (1987) viewed that stock return and inflation rates are most strongly related to measures of future real activity.

However, Modigliani and Cohn (1979) suggest that the stock market is very substantially under-valued because of inflation illusion. A similar claim regarding bond prices is put forward in Summer (1982).

Moreover, Perraudin (1987) then concluded that higher inflation induces investors to take on more debt and to invest the proceeds in financial asset.

Hence, Gordon and Halpem (1976) demonstrated that the allocation of an investors wealth between one period government bond and non-monetary risky asset (e.g. share of stock) is a function of uncertainty as to the inflation rate.

2.7 Relationship between Yield and Company Dividend Policy

Marsh & Merton (1986) in trying to answer a question

of why if stock prices are rational why then do dividends exist so little volatility (relative to stock prices) said that managers choose dividend policy as to smooth the effect of changes in the intrinsic value (and hence, rational stock prices). Moreover, Graddy and Karma (1986) hypothesied that the representative investor in bank holding companies share prefer dividend payment or payout over prospective capital gains returns. Thus company dividend policy is significant.

However, Miller and Modigliani(1961) pointed out that a corporations dividend policy has no effect on the value of its shares at all. This was supported by Black and Scholes (1974). However, this is refuted by Granham and Dodd (1951) and Stern (1979). Ross (1977) and Bhattacharya (1979)have also argued that dividend policy could be employed as a signalling mechanism. Thus, company dividend policy is essential.

Observation on the NSE shows that the dividend payment pattern of quoted companies (as shown in Table 2.7) has an average of 87.9% of quoted companies that gave dividend to their equity shareowners over the

time period of 1986 and 1989.

Table 2.7 Dividend Payment Pattern of Quoted Companies on the NSE, 1986 - 1989

YEAR	1986	1987	1988	1989
FREQ	90	84	92	95
TOTAL	99	100	102	111
As a % of TOTAL	91.8%	84%	92.2%	85.6%

Source: Calculated From The Nigerian Stock Exchange, Factbook, 1991

This shows that an average of thirteen (13) comapnies under the period under consideration had no dividend payment. Many factors could be attributed to the non-payment of dividend which are mainly qualitative factors. Among these could be the need to increase the reserves of the organization. Table 2.8 shows that only an average of 72.2% of quoted equities companies retained profit during the period under review.

Table 2.8 : Retained Profit Pattern of Quoted Companies on the NSE, 1986 - 1989

YEAR	1986	1987	1988	1989
FREQ	74	72	75	75
TOTAL	99	100	102	111
AS A % OF TOTAL	75.5%	72%	73.5%	67.6%

SOURCE: Calculated from, the Nigerian Stock Exchange, Factbook, 1991.

Dividend payment by quoted companies on the NSE has increased greatly after the indigenisation policy of 1972 studies of Uzoago and Alozieuwa (1974), Inanga (1975), Oyejide (1976) and Odife (1977) have shown this and this could be related directly or indirectly to the dividend policy of quoted companies.

2.8 POLICIES AND LEGAL FRAMEWORK

Olawoyin (1980) outlined the salient laws that have influenced the development and operations of the

capital market in Nigeria as follows:

(a) Trustee Investment Act of 1957 and 1962,

(b) Lagos Stock Exchange Act of 1961,

(c) Nigerian Enterprises Promotion (NEP) Decree of 1972 and 1977,

(d) The Nigerian Enterprises (issue of Non-voting Equity shares) Decree No. 34 of 1987,

(e) the Security and Exchange Commission Act of 1979. Re-enacted by Decree 29 of 1988,

(g) the Nigerian Enterprises Promotion Decree 1989,

(h) the National Economic Reconstruction Decree (NERFUND) Decree No. 2 of 1989,

(i) the Company Act of 1968 now superceded by the companies and Allied Matters Decree No. 1 of 1990.

Furthermore, the Insurance (Miscellaneous) Provision Act of 1964 and the tax and Divided Policy also had their impact on the Stock Exchange.

Ogwumike and Omole (1992), in a nutshell, highlighted tax, dividend and other policies have influenced the operation of quoted securities in Nigeria. The policy

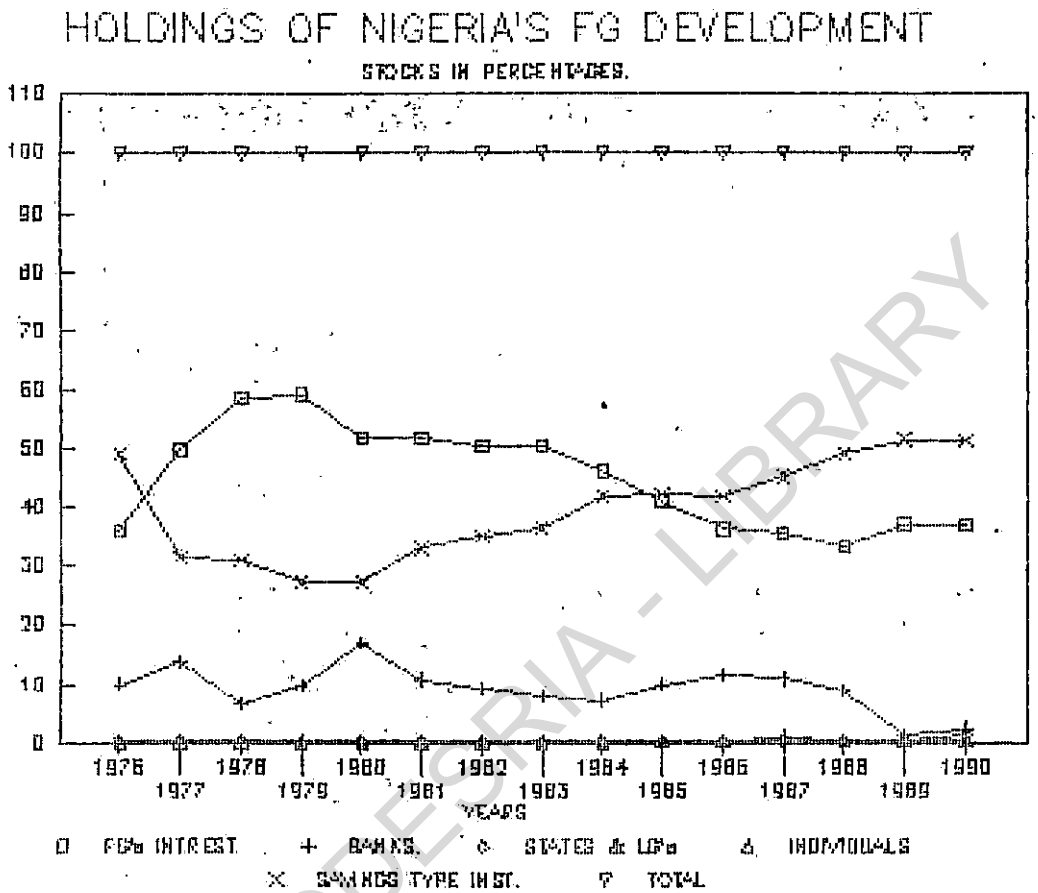
reforms and institutional changes enhanced and ensured competitiveness and smooth operation of the market.

The National Provident Fund (NPF) Act 1962, mandates that the NPF can only invest on government securites and debentures quoted on the Nigerian Security Market. Furthermore, the Insurance Miscellaneous Provision Acts of 1964 and 1976 provides that insurance companies operating in Nigeria must invest locally at least 25% of the premium received on locally insured risk in any financial year in government securities.

Moreover, the Trustee Investment Act, 1962 also allows trustees to invest in government stock in addition to debentures and shares of publicly quoted companies.

To sum it up, Figure 2.4 gives a representation of Table 2.5 which shows the holdings of Nigeria's Federal Government Development Stock in percentages. The table shows that after accounting for the Federal Government's interest, Banks (Merchant and Commercial)

Fig. 2.4



and saving type institution are major holders of government stock. The latest guidline on Banks investments makes it mandatory for Banks to hold these stock as they are considered as part of the liquid assets of respective banks.

The Saving type institutions include Pension Funds, Co-operative Thirft and Saving Societies, Post-Office Savings Bank, sinking funds schools, union and Religious organisation, Nominees and Commercial Banks for Nominees.

Figure 2.4 shows that since 1979 the holdings of the Federal Government's interest (mainly CBN holdings) has been declining with the proportion of the saving type institution rising overtime.

Finally, Table 2.5 shows that the holdings of insurance companies has also increase overtime, not reducing below the 1976 level in its fluctuations, however.

Table 2. 9 Holdings of Nigeria's F.G. Development Stock in percentages

AR	FG'S SHARE	SAVING TYPE INST.	BANKS	STATE/ LG'S	INSURANCE COYS	INDIVI- DUAL	OTHERS	TOTAL
76	36.1	49.1	10.0	0.4	2.7	0.1	1.6	100
77	49.8	31.6	13.8	0.2	3.2	0.1	1.3	100
78	58.5	30.9	6.5	0.1	3.2	0.1	0.6	100
79	59.3	27.3	9.8	0.1	2.7	0.1	0.7	100
80	51.8	27.5	17.2	0.1	2.7	0.1	0.7	100
81	51.7	33.1	10.8	0.1	3.1	0.1	1.1	100
82	50.6	35.1	9.3	0.1	2.8	0.1	2.1	100
83	50.6	36.5	7.9	0.1	2.7	0.1	2.1	100
84	46.2	41.9	7.2	0.1	2.7	0.1	1.8	100
85	41.2	42.4	10.0	0.1	3.5	0.2	2.7	100
86	36.3	42.0	11.5	0.1	3.9	0.2	6.0	100
87	35.6	45.3	11.0	0.1	3.9	0.9	3.2	100
88	33.4	49.1	8.8	0.3	4.6	0.2	3.6	100
89	37.1	51.6	1.0	0.2	4.9	0.2	5.0	100
90	37.0	51.5	2.3	1	3.9	0.2	4.3	100

Source: Computed from Central Bank of Nigeria, Statistical Bulletin, Vol. 1, Nos 1 & 2 December, 1990.

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CHAPTER THREE

FINDINGS

3.1 Data Collation and Regression Specification:

The researcher was able to collate the necessary data available from the Daily Official List of the NSE from 1961 to 1991. However, data for the equity stock securities available for collation ranged from 1973 to 1991.

Above all, all the data used for analysis in order to enhance the reliability are secondarily sourced mainly from the Daily Official List (DOL) of the NSE, the statistical Bulletin of the Central Bank of Nigeria (CBN) and the International Financial Statistics (IFS) Year book.

Furthermore, in order to enhance the validity of the data collected from the DOL of the NSE necessary adjustments were made for dividend payments (ex-div), script issues, bonus issues and capital gain. This is in contrast to that of Soyode (1991) that did not take cognisance of the necessary adjustments, but, would be used to compare our results in the course of our analysis. However, it must be noted

that Soyode (1991) study was mainly to assess the impact of economic policies on the Capital Market and there was no specific need to adjust the variables for their "pure" value.

Moreover, in collating our data, only equity stocks that paid out dividend during the corresponding years had its current price and dividend payout taken into consideration for computation of the Yield of the quoted securities. Furthermore, to enhance homogenity in the Loans, Debenture/Prefrence and Federal Government Stock Market, a unique norminal Par value, that captures mainly all the quoted securities was choosen in respective years of computation. The yield to maturity formula used was

$$Ym = \frac{\frac{I + PV - CP}{N}}{\frac{PV + CP}{2}} \quad \ldots\ldots \quad (i)$$

as shown in the literature review of this study.

Tables 3.1 and 3.2 shows the data compiled from the DOL of NSE for equity stocks and the debenture stock/bonds markets.

Table 3.1 Equity Stock Data Compilation

YEAR	DIVIDEND	STAN. DEV. (DIVIDEND)	PRICES	STAN. DEV. (PRICES)	YIELD
1973	21.25%	15.92	142.80	87.48	0.23
1974	29.9%	25.0	113.04	87.45	0.234
1975	29.02%	16.13	154.42	76.75	0.182
1976	34.44%	18.27	122.24	68.94	1.023
1977	16.26%	5.96	69.68	25.11	0.084
1978	13.30%	4.41	61.57	28.63	0.085
1979	16.10%	5.88	80.22	41.48	0.132
1980	20.2%	16.62	163.96	85.97	0.126
1981	18.89%	11.09	62.56	33.62	0.123
1982	20.4%	12.3	56.60	33.06	0.096
1983	16.8%	11.64	63.82	40.23	0.0699
1984	7.17	4.63	63.98	37.46	0.112
1985	8.72	6.97	74.32	36.75	0.117
1986	10.41	6.55	85.68	44.55	0.121
1987	10.64	7.83	107.37	89.60	0.099
1988	14.39	12.97	92.02	60.02	0.156
1989	15.36	12.55	123.8	82.09	0.124
1990	12.63	12.68	124.16	85.94	0.102
1991	15.56	11.65	131.04	114.0	0.119

Source: Daily Official List, NSE

le 3.2: Computed data on Debentures Stock and Bonds, Industrial Loans and FG Development Stocks

I	σ^{n-1}_{I}	PV	σ^{n-1}_{Pv}	CP	σ^{n-1}_{cp}	N	σ^{n-1}_{N}	YIELD
5.5	0.48	100	0	100	0	12.5	8.09	0.00004
5.5	0.45	100	0	100	0	11.5	8.09	0.0005
5.98	0.93	100	0	93.50	22.75	11.4	6.99	0.0059
5.92	0.89	100	0	100.60	1.80	9.8	6.84	-0.00005
5.84	0.85	100	0	101.03	2.11	11.5	6.93	-0.00084
6.19	1.02	100	0	100.80	1.97	10.6	7.03	-0.0069
6.23	1.05	100	0	10033	1.42	9.97	6.78	-0.00267
6.02	0.92	100	0	100.32	1.07	9.72	7.23	-0.00027
5.91	0.86	100	0	100.08	1.76	10.60	7.04	-0.00002
5.56	0.38	100	0	100	0	12.11	7.19	0.00005
5.88	0.89	100	0	95.74	15.89	10.61	6.89	0.00415
5.85	0.81	100	0	99.14	3.78	9.71	6.75	0.00416
5.92	0.94	200	0	198.09	7.57	10.27	6.69	0.00537
5.98	1.01	200	0	198.26	7.22	11.42	6.72	0.000791
5.87	0.81	200	0	198.30	7.15	10.45	6.65	0.000845
5.82	0.83	200	0	199.64	2.22	10.54	6.76	0.000198
5.79	0.76	200	0	196.38	18.66	10.58	6.86	0.001754
5.73	0.27	200	0	196.14	19.31	10.60	6.60	0.001866
6.09	1.08	100	0	95.01	6.94	9.89	6.44	0.005237
6.01	0.95	100	0	95.95	3.89	10.10	6.62	0.004153
6.26	1.27	100	0	91.82	7.57	8.03	4.98	0.0107
6.25	1.09	100	0	91.05	14.73	9.50	6.36	0.00993
6.61	1.28	100	0	85.90	7.13	8.96	5.32	0.01701
6.61	1.70	100	0	93.86	6.60	8.14	7.02	0.12285
6.32	1.22	100	0	81.49	10.78	7.71	5.26	0.0265
8.39	2.25	100	0	91.66	6.24	7.77	5.10	0.0114
8.66	2.46	100	0	92.38	11.98	7.80	5.54	0.0102
8.67	2.49	100	0	90.70	15.25	7.31	5.56	0.01347
9.37	3.15	100	0	92.13	12.00	6.57	5.09	0.01262
11.02	15.30	100	0	90.04	8.58	7.58	10.85	0.01398
11.27	4.75	100	0	85.72	17.00	6.37	5.05	0.02433

Source: Nigerian Stock Exchange
Daily Official List

Table 3.3 shows the data bank compilation of unadjusted variables, whose result would be used to compare the result derivable using the data collated in Table 3.1. The differences in the standard deviationof prices to a large extent could be attributed to the method of collation.

Table 3.3 Soyode (1991) data compilations

YEAR	YIELD	PRICES	STAND. DEV. PRICES
1980	0.127	70.7	1.6157
1981	0.123	73.8	0
1982	0.097	80.2	1.4728
1983	0.076	82.6	1.98955
1984	0.086	82.8	2.9259
1985	0.133	68.4	2.2996
1986	0.096	87.9	1.7452
1987	0.116	88.7	0.7452
1988	0.113	98.7	0.7446
1989	0.116	103.6	11.0559

Source: Data Bank

The regression specification used is

$$Y_t = a_o + bP_t + cF_t + d\,D_t + E \quad .....(ii)$$

Notations

where Y_t = Yields of quoted securities
P_t = Current Market PRice of Securities
b = Coefficient of P_t
F_t = Inflation rate
c = Coefficient of F_t
D_t = Dummy variable representing Company Dividend Policy
d = regression coefficient of D_t
a_o = intercept of the specification
E = Error term of the Specification

These are the various regression specification to be used in our analysis;

Equity Stock Market

$Y_t = ao + bP_t + cF_t + dD_t + E$ ..... (1)
$Y_t = ao + bP_t + E$ ..... (2)
$Y_t = ao + bP_t + E$ ..... (3)
$Y_t = ao + cF_t + E$ ..... (4)

Using Soyode (1991) data

$Y_t = ao + bP_t + cF_t + dD_t + E$ ..... (5)
$Y_t = ao + bP_t + cF_t + E$ ..... (6)
$Y_t = ao + bP_t + E$ ..... (7)
$Y_t = ao + cF_t + E$ ..... (8)

The Loan, Preference, Debenture and Federal Government Development Stocks

$Yt = ao + bP_t + cF_t + dD_t + E$ ..... (9)
$Yt = ao + {}^tbP_t + {}^tcF_t + {}^tE$ ..... (10)
$Yt = ao + bP_t + E$ ..... (11)
$Yt = ao + cF_t + E$ ..... (12)

Analysis of all quoted securities

$$Yt = ao + bP_t + cF_t^* + E \quad \ldots\ldots\ldots\ldots \quad (13)$$

$$Y_t = ao + bP_t + cF_t + E \quad \ldots\ldots\ldots\ldots \quad (14)$$

$$Yt = ao + bP_t + E \quad \ldots\ldots\ldots\ldots\ldots\ldots \quad (15)$$

where F_t^* = Consumer Price Index (1985 = 100)

In the course of analysis, emphasis would be laid on the correlation coefficient, the coefficient of multiple determination (R^2) and the adjusted coefficient of multiple determination ($\bar{R}^2$). The coefficient of multiple determination (R^2) shows the proportion of the variation in Yt jointly explained by variations in the explanatory variables while the adjusted coefficient ($\bar{R}^2$) enhances comparison more meaningful. Thus, Olayemi and Olayide (1981) were of the view that comparing $\bar{R}^2$ across equations with unequal number of independent variables would be legitimate and we can know if the introduction of additional variables has really improved the goodness of fit.

Moreover, a two-tailed test of statistical significance would be carried out at a 5% level of significance using t statistic. The null hypothesis

would be

$$H_o \; ; \; u = o \quad \ldots\ldots\ldots\ldots \quad (3)$$

and the alternate hypothesis

$$H_1 \; ; \; u \neq o \quad \ldots\ldots\ldots\ldots (4)$$

The decision rule is to accept the null hypothesis and reject the alternatve hypothesis if the Tabulated t is greater than computed t and vis visa.

3.2 THE EQUITY STOCK DATA ANALYSIS

Table 3.4 shows the data used for the regression equations to be analysed.

Table 3.4 Equity stock regression data

YEAR	Y_t YIELD	P_t PRICE	D_t COMPANY	F_t INFLATION
1973	0.23	142.80	1	5.4
1974	0.234	113.04	1	13.4
1975	0.182	156.42	1	33.9
1976	1.023	122.24	1	21.2
1977	0.084	69.68	1	15.4
1978	0.085	61.57	1	16.6
1979	0.132	80.22	1	11.8
1980	0.126	163.96	1	9.9
1981	0.123	62.56	1	20.9
1982	0.096	56.60	1	7.7
1983	0.0699	63.82	1	23.2
1984	0.112	63.98	1	39.6
1985	0.117	74.32	1	5.5
1986	0.121	85.68	1	5.4
1987	0.099	107.37	1	10.2
1988	0.156	92.02	1	38.3
1989	0.124	123.80	1	40.9
1990	0.102	124.16	1	7.5
1991	0.119	131.04	1	5.9

Source: NSE, Daily Official List
CBN, Statistical Bulletin, 1991.

Table 3.5: Regression result of Equity Stocks

Regression Number	Constant	P_t	F_t	D_t	R^2 *r	$\bar{R}^2$	n
1	-0.0326 (0.1727)	0.0011 (0.0015)	0.0022 (0.0043)	0.108 (0.106)	0.14 *0.37	-0.03	19
2	-0.0145 (0.172)	0.0016 (0.0015)	0.0015 (0.004)		0.079 *0.28	-0.04 -0.04	19
3	0.014 ((0.149)	0.0016 (0.0014)			0.071 *0.27	0.017	19
4	0.1528 (0.088)		0.0013 (0.004)		0.006 *0.08	-0.05	19

Table 3.6 shows the regression result using Soyode (1991) data.

Table 3.6: Results of Regression equations using Soyode (1991) data bank

Regression Number	Constant	P_t	F_t	D_t	R^2	$\bar{R}^2$	n
5	0.1302 (0.063)	-0.0002 (0.0008)	-0.0002 0.0007)	0.0035 (0.015)	0.078 *0.28	-0.38	10
6	0.1325 (0.057)	-0.0002 (0.0008)	-0.0002 (0.0006)		0.070 *0.26	-0.20	10
7	0.141 (0.047)	-0.0004 (0.0006)			0.057 *0.24	-0.06	10
8	0.114 (0.011)		-0.0003 (0.004)		0.056 *0.24	-0.06	10

Inspite of the smallness in the number of observations in Table 3.6, the results would be used to compare the result of Table 3.5

(i) The Relationship between Yields and Prices

Table 3.5 shows that there exists a positive relationship between Yields and current market prices of equity stock securities (see Regression No. 1, 2 and 3). Equation 3, however, captures the magnitude of this relationship effectively. It shows that a unit increase in Prices would only induce a 0.0016 increase in Yields of equity stock and the correlation coefficient shows that Prices only explains the degree of its relationship with Yield to an extent of 27%. Consequently the variations in Yields explained or caused by variations in Prices is only 7.1%. Thus, based on the magnitude of the regression coefficient of Price in equation 3, we can deduce that the magnitude of price on Yields is infinitestimal.

However, using Soyode (1991)'s data, table 3.6 shows that there exists a negative relationship between Yields and current market prices of equity stocks. But, because a negative $\bar{R}^2$ is meaningless and has to be assumed to be zero, we cannot compare the extent of variation with our results in Table 3.5. In fact, the disperity in the results of Table 3.5. and 3.6 could be attributed to the method of data collation and the smallness in the

number of observations used in Table 3.6.

(ii) The Relationship between Yields and Inflation

Table 3.5 depicts that there exists a positive relationship between Yields and Prices of equity stock securities (see regression euations 1, 2 and 4). But, the magnitude of this relationship is also infinitesimal when the regression coefficient of 0.0013 (Equation 4) is considered. This shows that as inflation is increasing the magnitude of change of Yields would be by a proportion of 0.0013. This shows that if Prices of shares are increasing as the rate of inflation is increases, the rate of return reflecterd in Yield would only be increasing at a proportion of 0.0013 which shows that the rate of returns would be very low. Thus, investments in equities may not be good hedges against inflation.

Conversly, table 3.6 shows that there should exist a negative relationship between Yields and inflation. This means that as inflation is increasing, Yields of equity stock would be decreasing by a magnitude of 0.003 (see regression equation 8). Once again, one can consider the relative smallness of number of observations used in Table 3.6 as not enhancing the chance of capturing the entire behaviour of the market when using unprocessed data as the case is.

Inspite of this, of utmost importance is the magnitude of the relationship which we could conclude to be very small.

(iii) The Relationship between Yields and Company Dividend Policy

Regression equations 1 and 5 have shown that there exists a positive relationship between Yields and qualitative factors, captured by Company Dividend Policy. But, with a regression coefficient of 0.108 and 0.0035 in equation 1 and 5, respectively, we could say that indications shows that qualitative factor could explain to an extent the variations in Yields, but, to a limited extent.

(iv) Statistical Test of Significance

Above all, all the regression equation coefficients of Table 3.5 tested at a 5% level of significance using a two tailed test with a degree of freedom (Df) of 17 shows that they are all statistically insignificant.

$H_o : u = o$

$H_1 ; u \neq o$

$\alpha = 0.05$

At 0.05 level $t_{\alpha/2} = t_{0.025}$

$df = 17$

Therefore, tabulated t - statistics = 2.110

Computed t =

Regr	Constant	P_t	P_t	D_t
1	-0.189	0.729	0.541	1.019
2	-0.084	1.127	0.364	
3	0.0933	1.142		
4	1.746		0.314	

Consequently, for all coefficients aforementioned, since, tabulated t > computed t, H_o is accepted and H_1 is rejected. This means that the regression coefficients are not statistically different from Zero.

For Table 3.6 at the same level of significance using a two tailed test with a D_f of 8;

H_o ; u = 0

H_o ; u ≠ 0

H_1 x = 0.05

At 0.05 level $t_{\alpha/2} = t_{o\ .025}$

df = 8

Therefore, tabulated t ratio = 2.306

Computed t =

Regr No.	Constant	P_t	F_t	D_t
5	2.0817	-0.283	-0.337	0.233
6	2.30569	-0.322	-0.306	
7	2.983	-0.698		
8	10.687	-0.689		

With the exception of the constant coefficients in Regression equations 6, 7 and 8, for all other coefficients;

Since. tabulated t > computed t

H_o is accepted and H_1 is rejected. But this is vis-visa for the constant coefficients in Regression equations 6, 7 and 8.

In fact, a cursory look at the correlation coefficients (*r) of regression equations 1 to 8 helps to give an insight into the reason why all the coefficients are statistically insignificant. The coefficients show that there exists a weak degree to which the dependent variable, Y_t and the respective independent variable are related. Thus, there is a weak convariability between the variables

3.3 THE LOAN PREFRENCE/DEBENTURE, AND FEDERAL GOVERNMENT DEVLLOPMENT STOCK ANALYSIS

Table 3.7(a) shows the data used for the regression specification to be analysed. The consumer Price index (1985 = 100) was used as a proxy for inflation rate.

	Y_t	P_t	D_t	F_t
YEAR	YIELD	PRICE	QUALITATIVE POLICY	INFLATION RATE
1961	0.00004	100	1	7.4
1962	0.00005	100	1	7.8
1963	0.0059	93.50	1	7.6
1964	-0.00005	100.60	1	7.7
1965	-0.00084	101.03	1	3.0
1966	-0.0069	100.80	1	8.7
1967	-0.00277	100.33	1	8.4
1968	-0.00027	100.32	1	8.4
1969	-0.00002	100.08	1	9.2
1970	0.00005	100	1	10.5
1971	0.0.00415	95.74	1	12.2
1972	0.00416	99.14	1	12.6
1973	0.00537	198.09	1	13.3
1974	0.000791	198.26	1	15.0
1975	0.000845	198.30	1	20.0
1976	0.000198	199.64	1	24.9
1977	0.001754	196.38	1	28.3
1978	0.001866	196.14	1	34.5
1979	0.005237	95.01	1	38.5
1980	0.004153	95.95	1	42.3
1981	0.0107	91.82	1	51.1
1982	0.00993	91.05	1	67.9
1983	0.01701	85.90	1	94.8
1984	0.12285	93.86	1	100.0
1985	0.0265	81.49	1	105.4
1986	0.0114	91.66	1	116.1
1987	0.0102	92.38	1	160.5
1988	0.01347	90.70	1	226.2
1989	0.01262	92.13	1	n.a
1990	0.01398	90.04	1	na
1991	0.02433	85.72	1	na

Sources; 1 International Financial Statistics Yearbook, 1990

2 NSE, Daily Official List

The result of the regression equation of the aforementioned quoted securities is given representation in Table 3.7 (b)

Table 3.7(b) Results of Regression equations

(Loan, Preference & debenture stocks/Bonds)

Regr No.	Constant	Prices P_1	Inflation F_t	Qualitative factors D_t	R^2 *r	$\bar{R}^2$	n
9	0.028 (0.17)	-0.0001 (0.0001)	0.0001_{-05} (8.1^{-05})	-0.01 (0.009)	0.24 *0.49	0.15	29
10	0.0095 (0.014)	-5.8^{-05} (0.0001)	0.0002_{-05} (7.8^{-05})		0.16 *0.40	0.10	29
11	0.023 (0.012)	-0.0001 (9.7^{-05})			0.05 *0.22	0.015	31
12	0.002 (0.005)		0.0002_{-05} (7.5^{-05})		0.15 *0.39	0.12	29

(i) The Relationship between Yields and Prices

The regression equations of 9, 10 and 11 in Table 3.7 (b) shows that there exists a negative relationship between Yields and Prices of debenture/development stocks and bonds on the NSE. To be precise, equation 11 shows that a unit increase in Prices would result to a 0.0001 decrease in Yields of debenture, Preference and development stocks/bonds. Thus, the variation in Yield accountable to the variation in prices is to an extent of 1.5% as shown by the R^2. The magnitude of this variaional impact is quite small when compared to that of inflation in equation 12

which has an $\bar{R}^2$ of 12%.

(ii) The Relationship between Yields and Inflation

Equation 9, 10 and 12 gives analytical indication that there exists a Positive relationship between Yields and Inflation of debentures, Preference and development stocks and bonds on the NSE. In fact, the $\bar{R}^2$ indicates in equation 11 and 12 that the variation in Yields of these securities is best explained by variation in inflation rather than in the current market prices.

(iii) The Relationship between Yields and Qualitative factors

Qualitative factors where represented in equation 9 as a dummy variable D_t. The regression coefficient of the dummy variable in equation 9 indicates that there also exists a negative relationship between Yields and qualitative factors.

Consequently, the magnitude of it impact on Yield is relatively significant when comparing the regression coefficients of equation 9.

(iv) Statistical Test of Significance

Taking equations 9, 10 and 12

H_o ; $u = 0$

H_1 ; $u \neq 0$

$\alpha = 0.05$

At 0.05 Level, $t_{\alpha/2} = t_{0.025}$

df = 27

Therefore, tabulated t = 2.052

Computed t ratio =

Reg. No.	Constant	P_1	F_t	D_t
9	1.606	-1.230	1.289	-1.620
10	0.6998	-0.58598	1.934	
12	0.41976		2.195	

Since for all coefficients (with the exception of the inflation coefficient in Equation 12)

Computed t $<$ tabulated t,

H_o is accepted and H_1 rejected.

Conversly, for the inflation regression coefficient in equation 12

$2.195 > 2.052$,

Thus, H_o is rejected and H_1 is accepted.

However, taking equation 11;

H_o ; $u = 0$

H_1 ; $u \neq 0$

$\alpha = 0.05$

At 0.05 level, $t_{\alpha/2} = t_{0.025}$

df = 29

Therefore tabulated t = 2.045

Computed t ratio =

Regr No.	Constant	P_1	F_t	D_t
11	1.980	-1.214	-	-

Since, Computed t $<$ tabulated t
H_o is accepted and H_1 rejected.

3.4 THE ANALYSIS OF ALL QUOTED ECURITIES ON THE CAPITAL MARKET

Table 3.8 shows the Average Yields (AVEY) and Average Prices (AVEP) computed from tables 3.4 and 3.7(a). A simple average computation was used by the addition of Yields and Prices in tables 3.4 and 3.7a together and dividing the result by two.

Table 3.8 Average Yields and Prices of Quoted Securities on the NSE

YEAR	AVEY	AVEP
1973	0.117685	170.445
1974	0.117395	155.650
1975	0.091422	177.360
1976	0.511599	160.94
1974	0.042877	133.03
1978	0.043433	128.855
1979	0.068618	87.615
1980	0.065077	129.955
1981	0.066850	77.190
1982	0.052965	72.825
1983	0.043455	74.860
1984	0.117425	78.920
1985	0.071750	77.905
1986	0.067700	88.67
1987	0.054600	99.87
1988	0.84735	91.36
1989	0.068310	107.965
1990	0.057990	107.100
1991	0.071665	108.380

In order to fully analyse the impact of inflation, we would make use of the consumer price index (CPI) (1985=100) in regression number 13 and the CEN's inflation rate in regression equation 14. Table 3.9 presents our result.

Table 3.9 Result of Regression for all quoted securities on the NSE

Regr. No.	Constant	Price P_t	Inflation F_t	R^2 *r	$\bar{R}^2$	n
13	-0.62 (0.13)	0.0014 (0.0009)	0.0001 (0.0005)	0.18 *0.42	0.06	17 17
14	-0.066 (0.09)	0.0013 (0.0001)	0.001 (0.002)	0.19 *0.44	0.09	19
15	-0.047 (0.077)	0.0012 (0.0007)		0.18 *0.42	0.13	19

(i) The Relationship between Yields and Prices;

Equation 13, 14 and 15 above indicates the existence of a positive relationship between Yields and current market prices of quoted securities on the NSE. A closer look at equation 15 shows that though Price has a positive correlation coefficient of 0.42, the extent to which variations in Yields are accountable to variations in current market prices is quite small at 18%. As a result, a unit increase in price would only lead to a 0.0012 increase in Yields of quoted securities. This magnitude is quite infinitestimal.

Inspite of this, however, a comparative glance at the $\bar{R}^2$ of equation 13, 14 and 15 tends to show that prices are the best indicators to capture the variations in Yields rather than inflation as equation 12 tends to show.

(ii) The Relationship between Yields and Inflation

Our regression results in Table 3.9 show the existence of a positive relationship between Yields and Inflation. The results show that using the consumer Price index (1985 = 100) and CBN's reported inflationary rate, only slightly changes the regression coefficient. Thus, equation 14 shows that a unit increase in inflation would lead to a 0.001 increase in Yields of quoted securities. Consequently, if in the face of galloping inflation, prices of quoted securities increase in the same proportion, Yields would only increase by a proportion of only 0.001. The magnitude of this impact is quite small and could induce investors not to invest in quoted securities in the face of inflation. This is supported by Okigbo (1980).

(iii) Statistical Test of Significance;

Taking equations 14 and 15 which have the same degree of freedom (Df).

H_o ; $u = 0$

H_1 ; $u \neq 0$

$\alpha = 0.05$

At 0.05 level of significance,

$t_{\alpha/2} = t_{0.025}$

d.f = 17

Therefore, tabulated t = 2.110

Computed t =

Regr.	Constant	P_t	F_t
14	-0.766	1.877	0.565
15	-0.605	1.913	

Consequently, for all coefficients,

Computed t < tabulated t

Thus, we accept the null hypothesis and reject the alternate hypothesis.

Furthermore, for equation 13,

H_o ; u = 0

H_1 ; u ≠ 0

α = 0.05

At 0.05 level of significance,

$t_{\alpha/2} = t_{0.025}$

$d_f = 15$

Therefore, tabulated t = 2.131

Computed t =

Regr. No	Constant	P_t	F_t
13	-0.4897	1.54	0.206

From the foregoing, we can deduce that computed t < tabulated t. This makes us accept the null hypothesis and reject the alternative hypothesis.

Nevertheless, the level of statistical insignificance of the independent variables could be attributed to some factors, among these are, the low level of correlation coefficients, the low level of the coefficients of multiple determination (R^2) and its adjusted ($\bar{R}^2$).

Furthermore, the nature of the capital market in Nigeria and the overall structure of the economy could be adjudged to influence the highly insignificant nature of the regression coefficients. Soyode (1991) contended that variations in the responses of the capital markets are mainly socio-cultural factors which could hide economic factors.

Moreover, Soyode advocated that the innate characteristics of the society in terms of savings, investment, growth and other economic and social variables are worthy to be noted.

(iv) The relative importance of the explanatory variables

In order to objectively measure the relative importance of the explanatory variables in the specification, namely Prices and Inflation, we would compute the beta coefficients of each explanatory variable.

$$B_j = b_j \left[\frac{S_{xj}}{S_y} \right]$$

Notations

where B_j = Beta coefficient
b_j = Regression coefficient of X_j
S_{xj} = Standard deviation of X_j
S_y = Standard deviation of Y^j
where X_j = explanatory variable
Y_y = dependent variable (Yield)

Computing from our data base used for equations 14 and 15 we derive;

S_y	S_p	S_f	b_p	b_f
0.206	34.24	12.10	0.0013	0.001

Consequently, the beta coefficient of prices

$$= B_p = b_p \left[\frac{S_p}{S_y} \right]$$

$$= 0.22$$

Conversly, the beta coefficient of Inflation

$$= B_f = b_f \left[\frac{S_p}{S_y} \right]$$

$$= 0.059$$

The result of the beta coefficients shows that Prices are relatively more important than inflation in explaining variations in Yields of quoted securities. This arises because $B_p > B_f$.

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CHAPTER FOUR

SUMMARY, CONCLUSION AND RECOMMENDATIONS

4.1 SUMMARY AND CONCLUSION

The major objective of this study was to determine whatever relationships exist between yields and prices of quoted securities in the Nigerian capital market. In the course of determining this relationship the researcher, was also to determine the relationship's magnitude.

Thus based on our objectives, our findings show that there exists a positive relationship between yields and prices of quoted securities in Nigeria. Empirically, however, this positive relationship is weak and in terms of magnitude very small as shown in Table 3.5 and 3.9.

The study has also shown the relative importance of current market prices over inflation in explaining the variations in yields of quoted securities.

However, when we disaggregate the quoted securities to consist only of loan, Preference shares, debentures and Federal Government stocks and bonds, a different

relationship is observed. Table 3.7(b) shows that the aforementioned securities when considered singly reflects a regative relationship between yields and prices. This relationship is also experienced when we use unadjusted data of equity securities as shown in Table 3.6.

Furthermore, we have observed that there exists a positive relationship between Yields and Inflation. However, when considering all other securities with the exception of equity stock, we still observed a positive relationship. But, when unadjusted data was used the relationship changed to reflect a negative relationship.

This has shown that quoted securities are not good hedges against inflation. When inflation increases, we would expect prices to increase in the same proportion. Consequently, as prices increase the stock holders would be expecting a higher rate of yield on their respective investment. But, far from this, Table 3.7(b) shows that as prices increase, yields in turn fall. This gives indication of a distorted price mechanism within the Nigerian Capital Market.

Moreover, we know that rational behaviour demands the maximization of utility from any given portfolio investment. However, in a situation where prices increase and yields decline we may expect rational investors to disinvest. But, the situation in Nigeria where government mandates the Pension Fund, Saving type institutions, Insurance Companies and Banks to take up a sizeable proportion of Development Stocks has inhibited this. For instance, the Insurance Decree mandates that at least 25% of premium collected locally must be invested in Development Stocks.

Conversly, the study observed the existence of a positive relationship between yields and qualitative factors such as company dividend policy in our equity stock analysis, and unadjusted data (Table 3.6). However, a negative relationship between yields and qualitative factors is observed with loans, Preference shares, debenture stocks and bonds.

Above all, in the course of this study it was observed that the tests of statistical significance of our regression coefficients show that they were statistically insignificant. In fact, the study

attributed the high level of insignificance of our regression coefficients to the low levels of correlation, the coefficient of multiple determination and its adjusted coefficient. This gives the premise of price and market distortions in the Nigerian Capital Market.

As a result, the implications of this study for policy makers, investors, stockbrokers and institutions of the Capital Market cannot be overemphasised. Analysing from the policy makers point of view, the findings of this study have shown that the regulatory functions of the institutions of the market have created price and market distortions. This arose because market forces have not been allowed to effectively allocate resources on the floors of the Stock Exchange. Consequently, socio-cultural factors rather than economic factors still explain to a large extent the behaviour pattern of the Capital Market.

Conversly, this study has shown that investors have to be very careful in investing in quoted securities, if their main objective is the returns which they can obtain from their investments. However, if their major objective is to maintain a moderate rate of returns and capital gains as experienced in the capital market,

then this study shows that in the advent of price increases the magnitude of change in yields is infinitestimal.

To the stockbroker, the study has shown that given the market imperfection a clamour for increases in prices of quoted securities cannot be achieved without a total deregulation of the market.

4.2 RECOMMENDATIONS

Bearing in mind the findings of the study anchored on the objectives of the study, the researcher recommends that;

Inspite of the fact that the government has constituted a committee to look into the modalities of deregulating the capital market, the government should as a matter of policy accelerate the immediate deregulation of Nigeria's Capital market.

Our premise for this recommendation is based on Okigbo (1980)'s study where he showed that majority of Nigerians invest in quoted securities because of the yield acruable to them. However, our study has shown that variations in yields explained by variations in prices of quoted securities is highly infinitestimal.

Furthermore, there is a need for a mass education of Nigerians on the workings of the Capital Market as a result of the aftermath of the total deregulation of the Capital Market. Because our study has shown that increases in prices of quoted securities do not reflect a proportional increase in yields of quoted securities. The magnitude of change has been shown to be very infinitesimal at a rate of 0.0013.

Finally, as a need for further study another functional form like the Log or root specification could be specified.

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