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**THE IMPACT OF INTEREST
RATE LIBERALIZATION ON THE
CORPORATE FINANCING
STRATEGIES OF QUOTED
COMPANIES IN NIGERIA**

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AFRICAN ECONOMIC RESEARCH CONSORTIUM

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Abstract

This paper analysed empirically the linkages among interest rates and the leverage ratios (debt-to-equity ratio and debt-to-capital ratio) of selected firms, their investment, turnover and profits. The study used a survey of business as well as the quoted companies' final accounts and balance sheets, both before and after liberalization. The result of the study showed a link between interest rates and the corporate financing strategies and the profitability of firms. It also revealed that interest rate liberalization has a link with the growth of the equity markets. On sectoral analysis, the study indicated that the interest rate liberalization does not seem to have similar effects on all the investigated quoted companies. However, industrialists are shown to be sensitive to cost of production, with interest rates treated as a major component in the cost profile. Basically, all items of production are admitted to be affected by interest rate variations. The study therefore underscored the need to identify the trilogy of investment, production and finance and also to formulate policies that will not only integrate the entire financial markets (both the money and the capital markets) in an attempt to synchronize the benefits of liberalization, but also to facilitate the financial mobilization process of firms, so that their optimum contribution to development can be facilitated.

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However, the result of the study reflects the views of the authors and not necessarily those of the AERC or the aforementioned personalities.

I. Introduction

The problem

The financial systems of most developing nations have come under stress as a result of the economic shocks of the 1980s. Additionally, financial repression, largely manifested through indiscriminate distortions of financial prices including interest rates, has tended to reduce the real rate of growth and the real size of the financial system relative to non-financial magnitudes. More importantly, financial repression has retarded the development process as envisaged by Shaw (1973). Undoubtedly, governments' past efforts to promote economic development by controlling interest rates and securing "inexpensive" funding for their own activities have undermined financial development.

Consequently, most countries, both developed, and developing have taken steps to liberalize their interest rates as part of the reform of the entire financial system. Such liberalization represents a policy response, encompassing a package of measures to remove all undesirable state imposed constraints on the free working of the financial markets. The measures include the removal of interest rate ceilings, and loosening of deposit and credit controls (Killick and Martin, 1990).

The Nigerian economy witnessed such financial repression in the early 1980s. There were rigid exchange and interest rate controls resulting in low direct investment. Funds were inadequate as there was a general lull in the economy. Monetary and credit aggregates moved rather sluggishly. Consequently, there was a persistent pressure on the financial sector, which in turn necessitated a liberalization of the financial system.

In response to these developments, the government deregulated interest rates in 1987 as part of the structural adjustment programme (SAP) policy package. The official position then was that interest rate liberalization would, among other things, enhance the provision of sufficient funds for investors, especially manufacturers (a priority sector), who are considered to be the prime agents, and by implication promoters, of economic growth. However, in a policy reversal, the government in January 1994 outrightly introduced some measure of regulation into interest rate management. It was claimed that there were "wide variations and unnecessarily high rates" under the complete deregulation of interest rates. Immediately, deposit rates were once again set at 12% – 15% per annum while a ceiling of 21% per annum was fixed for lending.

The cap on interest rates introduced in 1994 was retained in 1995 with a minor modification to allow for flexibility. The cap stayed in place until it was lifted in October 1996. The lifting remained in force in 1997, thus enabling the pursuit of a flexible interest rate regime in which bank deposit and lending rates were largely determined by

the forces of supply and demand for funds. (See Table 1.) The trend portrays the bias of policy authorities towards a liberalized interest rates regime.

Table 1: Structure of selected interest rates in Nigeria: 1980 –1997

Years	Central Bank			Deposit rates				
	Treasury certificate			Time				
	Treasury bills	One Year maturity	Two year maturity	3 months	3 - 6 months	6 - 12 months	Over 12 months	Savings
1980	5.00	5.50	6.00	5.75	6.00	6.25	6.50	6.00
1981	5.00	5.50	6.00	5.50	6.00	6.25	6.50	6.00
1982	7.00	7.50	8.00	7.25	7.50	7.75	8.00	7.50
1983	7.00	7.50	8.00	7.25	7.25	7.75	8.00	7.50
1984	8.50	9.00	9.50	9.75	7.25	9.75	10.00	9.50
1985	8.50	9.00	9.50	9.25	9.50	9.75	10.00	9.50
1986	8.59	9.00	9.50	9.25	9.50	9.75	10.00	9.50
1987	11.75	12.25	12.75	14.90	15.30	15.10	15.80	14.00
1988	11.75	12.25	12.75	13.40	12.10	13.70	14.30	14.50
1989	17.50	16.38	17.75	18.90	21.60	21.40	21.20	16.40
1990	17.50	18.20	18.80	19.60	20.50	22.10	23.00	18.80
1991	15.00	15.00	15.50	15.71	17.09	20.10	20.10	14.29
1992	21.00	22.00	23.00	20.23	21.04	21.12	20.50	16.10
1993	26.90	27.40	27.80	23.60	23.26	23.99	28.02	16.66
1994	12.50	13.00	13.50	13.40	13.80	14.10	14.20	12.30
1995	12.50	13.00	13.50	13.60	13.70	14.00	14.30	12.60
1996	12.00	-	-	12.30	12.80	13.20	13.30	10.10
1997	12.00	-	-	9.40	10.10	10.10	10.00	6.10

Sources: CBN (1995, 1997).

In view of the perceived benefits of liberalized interest rates, a number of pertinent questions deserve our keen consideration as a way of assessing the extent of success of the policy package. Equally, answers to these questions would enable us to assess the desirability or otherwise of the occasional resort to financial system regulation and control as practiced between 1994 and 1996. Such questions include:

- To what extent did the liberalized interest rates lead to increased corporate sourcing of funds in the money market or from alternatives such as the capital market?
- What happened to firm profits, turnover, investment, etc., before and during the interest rate liberalization regime?
- What are the possible implications of interest rate policy on the corporate financing strategy of firms in Nigeria?

These issues are addressed in this study as a way of assessing the impact of the interest rate liberalization policy, as well as the relationship between the occasional ceiling on interest rates and the mobilization of domestic resources.

Objectives of the study

The study sets out to examine empirically the pattern and direction of influence of interest rate liberalization on the corporate financing strategies of selected quoted companies in Nigeria, and the implications this will have for the effectiveness of interest rate policies. In the process, the effects of interest rate liberalization on firm profits, turnover, investment, etc., are also examined.

The specific objectives of this study are to:

- trace the impact of interest rate liberalization on the leverage mix of quoted companies in Nigeria and the financing strategy adopted by them;
- examine the direct impact of interest rate liberalization on stock market activities;
- highlight the possible problems faced by quoted companies as well as the probable benefits to them of financial sector liberalization; and
- draw policy conclusions for enhancing and synchronizing the probable benefits of interest rates liberalization.

Research hypotheses

The objectives listed above are based on the following research hypotheses:

- That the debt-equity ratio (financing options) of quoted companies in Nigeria is not related to interest rate liberalization.
- That there is no link between stock market activities in Nigeria and interest rates liberalization.

The theoretical underpinnings of these hypotheses are presented in Section II of this report. The analysis of the link between interest rates and financing strategies is rooted in the contending hypotheses of Modigliani and Miller (1958, 1963); Sundararajan (1987); Bhattacharya (1988); Dammon and Senbet (1988); and Lyon (1992).

We examined the empirical link between interest rates and the corporate financing strategy of quoted companies in Nigeria, as portrayed by their leverage mix.

The basic questions we attempted to answer are:

- How did the leverage mix of quoted companies in Nigeria respond to interest rate liberalization?
- Are there intersectoral differences in the leverage mix of quoted companies in Nigeria consequent upon interest rate liberalization?

- What are the possible implications of interest rates liberalization and the quoted companies financing strategy for the Nigerian stock market?

Plan of the report

The rest of the report is organized as follows. In Section II, we review briefly the existing literature relating to corporate finance issues and the link with interest rates. Section III reviews the theoretical framework, while Section IV presents an overview of the methodology adopted. The results are presented in Section V and we conclude in Section VI.

II. Literature review

Issues in corporate financing

Corporate financing strategy incorporates the decisions a firm makes about its capital structure, that is, choices of the best debt-equity mix to use to finance its operations. There is an ongoing debate in the literature about the effects of gearing on the weighted average cost of capital. Indeed, the empirical evidence so far is inconclusive and the argument continues unabated.

Contrary to the traditional view of corporate finance, Modigliani and Miller (1958) argued that there was no optimal capital structure. The Modigliani-Miller (M-M) theorem states that the cost of capital is independent of the financing mix (the debt-equity ratio) in a world with rational investors, perfect capital market, no taxes and no default or bankruptcy risks (Modigliani and Miller, 1958). In the M-M framework, a unique optimal debt-equity ratio does not exist in a firm's investment decision.

The Modigliani and Miller theorem is based on three key propositions:

- That the firm, acting rationally, will tend to push investment to the point where the marginal yield on physical assets is equal to the market rate of interest.
- That the expected rate of return on yield, i on the stock of any company i , belonging to K th class is a linear function of leverage. Notationally, this is given as:

$$S = P_k + (P_k r) D_i / S_i \quad (1)$$

where: S = expected rate of return or yield
 P_k = capitalization rate
 r = interest charged
 D_i = market value of debt for company
 S_i = market value of common share in the company

- That if a firm, in class k , is acting in the best interest of the stockholders at the time of the decision, it will exploit an investment opportunity if and only if the rate of return on the investment, say " P ", is as large as or larger than P_k and will be completely unaltered by the type of security used to finance the investment (Modigliani, 1988; Miller, 1988).

Indeed, the third M–M proposition has given rise to a large body of theoretical work focusing on the determination of the financing mix used by firms (Donaldson, 1961; Mayers, 1977, 1984, 1985; Molho, 1986; Fazzari et al., 1988; Ross, 1988; Bhattacharya, 1988; Harris et al., 1992; Lyon, 1992; Jaramillo et al., 1993). The initial propositions of the M–M theorem were also extended to incorporate a tax hypothesis (Modigliani and Miller, 1963; Modigliani, 1988; Miller, 1988).

However, since the celebrated M–M theorem in 1958 and its subsequent extension in 1963, there has been an enormous amount of work to either support or refute the tax adjusted valuation model of the M–M theorem (King, 1977; Hite, 1977; Auerbach, 1979; DeAngelo and Masulis, 1980; Grossman and Stiglitz, 1980; Taggart, 1980; Auerbach and King, 1983; Barnea et al., 1985; Sundararajan, 1987; Dammon and Senbet, 1988; Stiglitz, 1988; Givoly et al., 1992; Lyon, 1992). In some of these studies, the possibility of taxation, bankruptcy and financial distress were introduced to produce an optimal capital structure for the firm and therefore invalidate the M–M irrelevance theorems (Hite, 1977; DeAngelo and Masulis, 1980; Barnea et al., 1985; Dammon and Senbet, 1988; Sundararajan, 1987; Singh and Hamid, 1992; Lyon, 1992). The general conclusion of many of these studies is that even in the absence of the confounding effects of taxation, one should expect the existence of an optimal ratio of debt and equity for a firm. For example, Hite (1977) shows that an increase in financial leverage of a firm will reduce the “user cost of capital” and therefore, lead to an increase in the optimal output level of that firm. Although the conclusion of Hite’s model implicitly limits the amount of debt financing a given firm can obtain, it nevertheless indirectly reveals that there is a divergence in the cost of internal and external sources of finance to firms; this divergence may therefore affect the efficiency with which investment is allocated.

Sundararajan (1987) examined the linkages among interest rates, the debt–equity ratio of firms, the overall cost of capital, savings, investment and growth in the Korean economy during 1963–81. He used a dynamic framework that recognizes the complex interactions among these variables. According to him, a change in the administered interest rate affects the unregulated rate, the overall cost of capital, the real interest rates and the debt–equity choice of firms. This thereby sets in motion a chain of responses influencing the desired level of the capital stock and its profitability, as well as the availability of savings and the consequent speed of adjustment of the actual capital stock to the desired level.

Further, Sundararajan (1987) asserts that the debt–equity ratio is important because the overall cost of capital to investors –which influences fixed investment, its efficiency and profits –can be expressed as a weighted sum of the opportunity cost of bank debt and that of equity, with the weights depending on the debt–equity ratio. Therefore, the multiplier effects of changes in the cost of bank debt (i.e., the interest rate) on the overall cost of capital, and hence on investment incentives and the productivity of capital, depend, among other things, on the share of debt in investment financing and on the induced adjustments in this share, and in the cost of equity. By implication, there exists an optimum debt–equity mix for firms. Consequently, the cost of capital depends on the debt–equity mix first falling and then rising as the debt ratio rises. As a result, the financing and real decisions are no longer independent.

In a model developed for this purpose Sundararajan (1987) derived a precise expression of the desired average debt ratio by postulating that firms strive to obtain the debt-equity mix that minimizes the cost of capital. According to him, the optimal debt-equity ratio can be expressed as:

$$DE^* = d^*(i_u, i, H) \quad (2)$$

where:

- DE^* = desired debt-equity ratio
- d^* = nonlinear function of the interest rate subsidy and the rate of inflation
- i_u = nominal interest rate in the unregulated market
- i = weighted average of domestic and foreign interest rates (adjusted for exchange rate change)
- H = rate of inflation

In other words, the larger the interest rate subsidy, the higher the desired debt-equity ratio. Further, the desired ratio will rise or fall with inflation, depending on whether the marginal risk premium falls or rises with inflation (Sundararajan, 1987). The underlying assumption of this specification is that in general the desired debt equity ratio will be positively related to the implicit interest rate subsidy from the regulated financial markets.

The study by Dammon and Senbet (1988), which examines the effect of taxes and depreciation on corporate investment and financial leverage under uncertainty, hinged on DeAngelo and Masulia's (1980) extended model, shows that increases in investment-related tax shields due to changes in the corporate tax code are not necessarily associated with reductions in leverage at the individual firm level. Moreover, the cross-sectional analysis of firms with higher investment related tax shields indicates that they need not have lower investment related tax shields unless these firms use the same production technology. Actually, this study emphasizes that there are other factors apart from the Sundararajan's (1987) interest subsidy and the inflation rate that can bring about a change in the financial leverage of a firm. This is also corroborated by Lyon (1992), who emphasized that under a classical corporate income tax, dividends, retained earnings and debt are all treated differently. However, firms are expected to adopt the form of finance with the lowest tax costs.

Bhattacharya (1988), Harris et al. (1992), and Lyon (1992) provided a set of models, alternatives to M-M theories, grounded in asymmetric information between corporate insiders and outsiders (shareholders or creditors) in which they establish a link among interest rates, financing and investment decisions. They assert that corporate financial behaviour adjusts discretely to changes in earnings as predicted by signaling models (Lintner, 1956; Kumar, 1987; Jaramillo et al., 1993).

With that, our proposition rests on the assumption that there exists an optimum debt-equity mix for firms in less developed countries (LDCs), especially in view of various market distortions. In the next subsection, we highlight further the theoretical link between interest rates and corporate financing options as a basis for understanding the focus of this study.

Interest rates and corporate finance link

There is no doubt a theoretical link exists between interest rates and the financial structure of firms. Interest rates operate through their influence on the cost of capital to the investor, as well as on returns to various groups of savers. A change in the interest rates affects the debt-equity choice of a firm, the overall cost of capital and real interest rates, and thereby sets in motion a chain of responses influencing the desired level of the capital stock and its productivity as well as the availability of savings and consequent speed of adjustment of the actual capital stock to its desired level.

The debt-equity ratio is important because the overall cost of capital to investors, which influences fixed investments, their efficiency, and profits can be expressed as a weighted sum of the opportunity cost of bank debt and of equity, with the weights depending upon the debt-equity ratio. Therefore, the multiplier effects of changes in the cost of bank debt, on the overall cost of capital, depend among other things on the share of debt in investment financing and on the induced adjustment in this share and in the cost of equity. Further, the cost of equity is said to incorporate a risk premium that first falls and then rises as the debt-equity ratio rises. The resulting U-shaped cost of capital has been proved to have far-reaching implications for the effectiveness of interest rate policy (Sundararajan, 1987).

In general, the desired debt-equity ratio will be positively related to the implicit interest subsidy on credit from the regulated financial markets. Therefore, the direct effects of interest rates on savings and investment can be reinforced or offset by the substantial indirect effects arising from the optimal adjustments in the implicit interest subsidy, and hence induce a fall in the debt-equity ratio.

Other channels through which the interest rates influence the financial structure of firms include the neoclassical rental-wage ratio by which higher interest rates raise the relative price of capital and thereby encourage more intensive use of capital and capital-labour substitution. Another is the project evaluation mechanism by which higher real interest rates may improve the quality and efficiency of bank credit rationing, thereby weeding out projects that were profitable only with lower interest rates and encouraging those with higher yields. The financial deepening that directly influences factor productivity through higher real rates of interest is another channel, and finally there is the portfolio choice that diverts savings from low-yielding, self-financed investments to the acquisition of financial assets, through higher yields (McKinnon, 1973; Shaw, 1973; Fry, 1982; Sundararajan, 1987). From all indications, however, the link between the interest rates and corporate capital structures as well as the pattern of influence of corporate financing strategies on the effectiveness of interest rate policies, warrant attention because of its implication for resource mobilization, production and growth.

III. Theoretical framework

Our analysis of the debt-equity mix of firms in this study is rested on the new theoretical developments that invalidate some of the restrictive assumptions of the M-M propositions on corporate finance. That is, the finance of firms in less developed countries (LDCs) under the problems of taxation and asymmetric information.

The choice of this analytical framework is informed by the recent conclusions of many of the studies that are directed to the analysis of firms' capital structure and investment decisions in LDCs including Nigeria. Of interest, it has been identified that problems of agency costs, asymmetric information between insiders (managers) and outsiders (creditors, or shareholders), problems of adverse selection, moral hazard, taxation, signaling, and transaction costs result in a divergence in the cost of internal and external sources of finance, with adverse effects on the allocation of investible funds. Moreover, many of these studies have confirmed that the problems of agency costs in the presence of asymmetric information in LDCs are militating against the use of debt finance by corporate firms. In addition, these identified market distortions, coupled with the higher tax costs on equity finance, have resulted in general underinvestment in LDCs so as to maintain a lower cost of corporate finance (Sundararajan, 1987; Harris et al., 1992; Jaramillo et al., 1993).

In fact, the identified market distortions in the corporate finance of firms in LDCs have often influenced the financing options chosen by many entrepreneurs, with attendant effects on firm operations. In particular, the behaviours of many of these corporate managers in LDCs have negated the prediction of the traditional economic models that requires funds for investment to flow to projects with the highest expected return. Therefore, the higher tax costs, agency costs, transaction costs, etc., have constituted some barriers to the efficient allocation of capital across firms in LDCs (Sundararajan, 1987; Morisset, 1991; Harris et al., 1992; and Jaramillo et al., 1993). In addition, the asymmetric information in LDCs has presented a different type of barrier to the efficient allocation of capital in that it has resulted in either overinvestment or underinvestment in the economies. To be precise, there are occasions when funds are applied to projects with low expected returns (see Lyon, 1992; Jaramillo et al., 1993).

Therefore, contrary to the M-M theorem, which suggested a dichotomy between finance and the real economy, the behaviours of corporate management in LDCs suggest that finance is not simply a veil, but that there are very important interactions between corporate finance and the real economy. That is, corporate growth and investment decisions in LDCs are dictated by both financial and real variables.

Our tentative conclusions, then, are that the financing and real decisions of firm(s) in LDCs are no longer independent. In other words, due to the agency cost arguments in the presence of asymmetric information in LDCs, certain types of projects are more likely to obtain financing at a lower cost using equity finance rather than debt finance. However, if the tax costs of equity are higher than those of debt, these projects may be relatively under financed (see Barnea et al., 1985; Dammon and Senbet, 1988; Lyon, 1992).

In a nutshell, our proposition in this study follows Sundararajan's (1987) hypothesis, which assumes the existence of an optimum debt-equity mix for firms. Empirically, the cost of capital depends on the debt-equity mix first falling and then rising as the debt ratio rises. Notably, the findings of Sundararajan (1987) corroborate the existing peculiar nature of LDCs' financial markets, which are full of imperfections in spite of the liberalization programmes. Apart from the interest rates subsidy or the rate of inflation, which is the driving force in the model, this study also takes into consideration other distortions such as agency costs, differential taxation, bankruptcy, moral hazard, transaction costs and asymmetric information in the analysis of the debt-equity mix of quoted companies in Nigeria. The methodology for tracking this relationship is presented in the next section.

IV. Methodology

Our analysis of the impact of interest rate deregulation on the corporate financial structures in Nigeria takes into consideration the peculiar nature of markets in LDCs, including Nigeria. In these countries it has been observed that persistent over-investment is unlikely to occur (Lyon, 1992; Harris et al., 1992; Jaramillo et al, 1993). However, due to a number of market distortions such as tax costs, principal-agent problems, information asymmetries, bankruptcy, moral hazard and transaction costs, there are certainly many occasions when funds are applied to projects with low expected returns. Because the presence of these distortions militates against traditional economic theory, the proposition that the opportunity cost of finance should be equalized from all sources and in turn equated with the expected marginal return to investment is irrelevant in most developing economies. Even in the few occasions where seemingly perfect markets are in existence, there are constraints on corporate finance in the form of agency costs in the presence of information asymmetries. Given the foregoing observation, this study closely follows the methodology suggested by Harris et al, (1992).

Model specification

The specification of our model is based on the assumption that quoted firms in Nigeria usually increase their capital stock through investment in response to potential profit earning opportunities. Therefore, desired investment can be financed in a number of ways, including debt finance, equity finance and the retention of cash flow (internal finance). The choice of a source of finance for these enterprises depends on differential tax costs, market segmentation and market rates of interest.

We conducted our empirical analysis by estimating an unrestricted investment equation of the general accelerator type, to which we have added cash flow (P/K_{t-1}) and the leverage ratios—debt-capital ratio (D_{t-1}/K_{t-1}) and the debt-equity ratio (D_{t-1}/E_{t-1})—as additional regressors.

The general specification of our model is:

$$\begin{aligned} I_{it}/K_{it-1} = & \alpha_0 + \alpha_1(I_{it-1}/K_{it-2}) + \alpha_2(\Delta Y_{it}/K_{it-1}) + \\ & \alpha_3(P_{it}/K_{it-1}) + \alpha_4(D_{it-1}/K_{it-1}) + \alpha_5(D_{it-1}/E_{it-1}) + V_{it} \end{aligned} \quad (3)$$

where $V_{it} = \sum_{t=1}^n \tau_i + nt$

τ_i	= time invariant firm specific effect
nt	= common time effect
I_{pt}	= firm specific gross physical investment at time t
k_{pt}	= firm specific fixed capital stock at time t
ΔY_{pt}	= $(Y_{pt} - Y_{p,t-1})$ firm specific increase in turnover at time t
P_{pt}	= firm specific gross profit before tax at time t
D_{pt}	= firm specific stock of debt at time t
E_{pt}	= firm specific equity at time t

However, in order to examine the effects of liberalization on the performance of quoted companies in Nigeria vis-a-vis capital structures and investment decisions, we allow the coefficients of the cash flow (P/K_{t-1}) and the leverage ratios, (D_{t-1}/K_{t-1}) and (D_{t-1}/E_{t-1}), to reflect the situation before and after liberalization. That is, additional variables in the form of ($DumP/K_{t-1}$), ($DumD_{t-1}/K_{t-1}$) and ($DumD_{t-1}/E_{t-1}$) are added. Each of these variables is assumed to be zero pre-liberalization and equal to the original value post-liberalization.

Thus, we have:

$$\begin{aligned}
 I_p/K_{p,t-1} = & \beta_0 + \beta_1 (I_{p,t-1}/K_{p,t-2}) + \beta_2 (\Delta Y_{pt}/K_{p,t-1}) + \beta_3 (P_{pt}/K_{p,t-1}) \\
 & + \beta_4 (D_{p,t-1}/K_{p,t-1}) + \beta_5 (D_{p,t-1}/E_{t-1}) + \beta_6 (DumP_{pt}/K_{p,t-1}) \\
 & + \beta_7 (DumD_{p,t-1}/K_{p,t-1}) + \beta_8 (DumD_{i,t-1}/E_{t-1}) + Vt.
 \end{aligned} \tag{4}$$

Data requirement and sources

The data requirements for this study included information about choices of debt and equity options of financing as well as the decisions relating to financing strategies adopted by companies. We obtained specific qualitative information from private investors about their financing strategies under the liberalized financial system. For a meaningful analysis, the study also used some key financial variables from the balance sheets of the quoted companies such as firm's profits, investment, turnover, long-term debts and share capital (authorized, issued and fully paid).

A comprehensive field survey of selected listed enterprises was conducted and questionnaires were administered. Substantial information was also collected at the head offices of the Nigerian Stock Exchange (NSE) and the Central Bank of Nigeria (CBN). All relevant balance sheets of the selected listed companies, usually sent to the stock exchange offices, were examined and relevant figures extracted.

Scope of study

The study covers 105 active quoted companies in Nigeria. The companies covered all the major industrial classifications excluding banks and insurance sectors, which represent the lending end of the financial system. The selected companies also cover productivity sectors such as food, beverages and tobacco; chemicals; machinery; and transportation.

Survey procedures

The study team visited all the establishments and met with officials of the companies to acquaint them with the focus and objectives of the study. The discussions centred around their experiences and opinions about the impact of liberalization on their operations.

Following the discussions, the team administered questionnaires to all 105 companies to obtain additional information. About 62% responded fully.

To complement the information from the survey, the study team visited the offices of the NSE, CBN and the Federal Office of Statistics (FOS). Discussions were held with the respective officers, and relevant data were collected from the books. A comprehensive analysis of the results is provided next.

V. Empirical results

This section presents the overall results of the general findings of the study, from both the field survey and the data collected from secondary sources. Every attempt was made to ensure that the companies covered represented all the sectoral distributions as classified by the NSE; these classifications are shown in the various tables presented in this section. We focus on the debt-equity profile of the firms, which represents their financing options.

Financial statistics results

The results presented in this section include the analysis of the debt and equity structures of the selected quoted companies, and the companies' investment structure, turnover and profits. We also corroborate the findings with the opinions expressed during the survey, followed by general observations on the findings.

Debt-equity profile of the selected quoted companies

The debt-equity ratios of the selected quoted companies are presented in tables 2 and 3 by the NSE sectoral classifications from 1983 to 1996. The period is retained throughout the whole analysis. The aim was to examine clearly the trends before and after the liberalization. (See also appendixes A and B.)

The debt-equity ratios range from 0% in the engineering technology and footwear sectors to well over 200% in commercial and publishing subsectors. The ratios show great variation over time; while some increase steadily, others decline, and many fluctuate. In general, the yearly sectoral average shows that the debt-equity ratio increased from 40.48% in 1983 to 58.36% and 63.92% in 1984 and 1985, respectively. However, there was a decline to 58.24% in 1986, and a further decline to 34.90% in 1987 and 32.30% in 1988. Although there was a slight increase to 34.63% in 1989, there was a further decline to 31.34% in 1990, 32.34% in 1991 and 30.42% in 1992. The ratio dropped further to 27.62% in 1993. Compared with 1985, when the average debt-equity ratio was 63.92%, the 1993 structure had gone down by more than half. The ratio declined to 24.65% in 1994 and to 22.2% and 20.1% in 1995 and 1996, respectively. The continuing decline of the debt-equity ratio suggests that the liberalization programme introduced by the government in 1987 induced the quoted companies to prefer equity finance rather than debt finance. However, it may also be due to the fact that these companies are obtaining

Table 2: Debt-equity ratio of selected quoted companies in Nigeria: 1983 – 1996 (in percentages)

NSE classification	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Automobile & tyre	49.74	51.85	59.84	60.55	26.78	63.73	52.54	55.71	167.09	97.76	79.07	74.54	70.26	66.23
Breweries	10.50	5.97	4.27	6.26	5.58	5.12	8.71	5.70	5.38	5.67	5.53	4.72	4.07	3.54
Building materials	73.17	58.33	38.75	35.65	70.08	30.69	34.50	33.83	13.63	35.90	25.94	21.78	18.54	15.95
Chemical & paints	28.70	32.42	26.23	24.24	16.62	10.78	9.76	11.31	10.59	9.69	14.79	13.07	11.60	10.34
Commercial	115.39	202.70	258.93	264.21	56.22	61.44	42.04	22.34	17.46	27.41	23.66	20.30	17.59	15.36
Computer & equipment	40.83	39.25	27.18	11.94	8.82	7.75	21.33	2.44	3.47	18.70	28.19	25.36	22.88	20.69
Conglomerates	42.14	35.98	31.91	24.60	23.15	15.88	21.36	41.73	36.71	19.25	14.78	12.85	11.25	9.91
Construction	5.29	5.16	5.16	5.32	20.77	9.48	181.24	155.73	107.60	103.50	66.11	60.48	55.40	50.82
Engineering tech.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food & tobacco	33.33	19.87	22.80	10.24	16.52	21.09	24.98	17.84	27.97	41.92	28.82	25.48	22.64	20.19
Footwear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ind. & domes. prod.	28.96	19.27	12.70	45.92	120.21	88.64	62.71	47.95	52.52	50.32	66.86	60.84	55.46	50.63
Machinery	13.89	20.39	136.28	76.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Packaging	0.00	253.20	224.44	183.04	41.45	32.91	28.31	23.80	20.62	13.13	13.56	11.71	10.19	8.93
Petroleum	1.62	7.48	6.25	6.98	6.78	4.63	1.31	0.00	0.00	7.28	11.20	9.79	8.62	7.63
Pharm. & ani. feeds	24.72	21.54	19.77	12.36	17.88	64.19	14.24	10.82	20.08	23.25	14.89	12.86	11.20	9.82
Publishing	231.38	281.47	272.97	252.85	102.78	72.02	64.57	58.70	50.22	14.12	24.21	22.96	21.78	20.65
Textiles	69.45	39.26	25.59	18.08	44.03	42.18	34.63	41.16	39.29	68.50	71.03	56.83	46.64	38.99
Second-tier mkt.	0.00	14.72	41.44	67.75	85.37	83.21	55.72	66.46	41.80	41.68	36.10	34.87	33.68	32.55
Yearly average	40.480	58.362	63.923	58.244	34.896	32.303	34.629	31.344	32.339	30.425	27.618	24.655	22.200	20.119

Source: Computed from Appendixes A and B.

finance at the capital market at a lower cost, resulting from both the tax subsidy and the high interest rates at the money market.

Table 3: Financial structure of selected quoted companies in Nigeria: 1983-1996
(summary statistics in percentages)

NSE classifications	Debt-equity ratios		Debt-capital ratios	
	1983-87	1988-96	1983-87	1988-96
Automobile & tyre	49.751	80.77	82.08	56.49
Breweries	6.516	5.38	5.87	9.53
Building materials	55.197	25.64	28.31	33.21
Chemical & paints	25.641	11.33	11.51	38.74
Commercial	179.490	27.51	26.32	109.20
Computer & equip.	25.604	16.76	15.12	34.66
Conglomerates	31.556	20.41	24.48	33.06
Construction	8.340	87.82	92.06	7.13
Engineering tech.	0.000	0.00	0.00	0.00
Food & tobacco	20.552	25.66	28.73	19.67
Foot wear	0.000	0.00	0.00	0.00
Ind. & domes. prod.	45.413	59.55	60.02	27.19
Machinery	49.443	0.00	0.00	44.66
Packaging	140.426	18.13	19.43	87.11
Petroleum	5.825	5.61	4.08	5.51
Pharm. & ani. feeds	19.255	20.15	21.04	22.73
Publishing	228.291	38.80	42.90	112.46
Textiles	39.281	48.81	51.56	25.46
Second-tier mkt.	41.856	47.34	50.17	64.36
Yearly average	51.18095	28.40	29.67	38.48

Source: Computed from annual reports and statements of accounts of 105 selected quoted companies in Nigeria (various issues).

The implication is that, on the whole, the percentage of debt in the total fund used by companies declined with slight variations consequent upon interest rate liberalization in 1987. As emphasized earlier, this may be due to both the lower tax costs on equity finance and the increases in the hitherto low lending rates from about 10% before the liberalization to between 25% and 33% after the liberalization (Table 1). Notwithstanding, the debt-equity ratios appear significant enough, implying that companies attempt to take advantage of the surplus funds in the money market (see Soyibo and Adekanye, 1992a/b).

One important implication of this result is that it conforms with the traditional theory of finance and the new theoretical developments of the last decade that emphasized that a firm is assumed to choose the source of finance that maximizes the current share value of the firm (King, 1977; Myers, 1977, 1984; Auerbach, 1979; Auerbach and King, 1983; De Angelo and Masulis, 1980; Dammon and Senbet, 1988).

Also, if we take a look at Table 3, which summarizes the financial structure of the quoted companies for the periods of pre-liberalization (1983–1987) and post-liberalization (1988–1996), we will observe that a lot of dramatic changes occurred during the liberalization programme. Notably, the degrees of leverage (i.e., debt-equity ratios and debt-capital stock ratio) vary across sectors during the period. While these financial ratios declined in 10 sectors (breweries, building materials, chemicals and paints, commercial, computer and office equipment, conglomerates, machinery, packaging, petroleum, and publishing) during the post-liberalization period, they went up in the other sectors. Specifically, during the post-liberalization period the debt-equity ratio of firms declined significantly in publishing, commercial, packaging, and machinery, by about 199, 152, 122 and 49 percentage points, respectively. In the same vein, the debt-capital stock ratio declined in these four sectors by about 69, 23, 68 and 45 percentage points, respectively. The debt-equity ratio increased significantly in two sectors, automobile and tyres, and construction, by about 3 and 8 percentage points, respectively, in the period of 1988–1996. The increase in the debt-equity ratios of these two companies is not unconnected with the federal government's mass transit programme and the housing policy, which made them targets of subsidized credit from the government.

On the periodic average, the debt-equity ratio declined by about 23 percentage points in 1988–1996 from about 51.2% in 1983–1987. The debt-capital stock ratio also increased by about 9 percentage points during the post-liberalization period. Another important implication of the result is that the development in the money market has given a boost to the stock market activities through increased patronage, which has tended to boost the overall market capitalization from about ₦8.9 billion in 1987 to about ₦285.6 billion in 1996. No doubt, the liberalization of the money market has given great impetus to the development of capital market (see Ogwumike and Omole, 1990; Omole, 1993; NSE, 1997). Figure 1 shows the debt equity-ratio trend between 1983 and 1996, while Figure 2 presents the pictorial representation of the financial structure of selected quoted firms in the study.

Investment structure of the selected quoted companies

Table 4 shows the investment structure of the selected firms by sectors from 1983 to 1996. (See also Appendix C). Across sectors, the investment by firms varies, ranging from zero in engineering technology and machinery subsectors to well over ₦14 million in the chemical and paints subsectors and about ₦62 million in conglomerates. Investment levels in the breweries, commercial and textiles subsectors also vary from about ₦1 million to ₦11 million.

In general, the investment structure shows a progressive pattern from 1983 to 1996 with the exceptions of chemical and paints, packaging, and footwear, where the investment levels appear to have been fixed at ₦14 million, ₦0.5 million and ₦0.04 million, respectively. Others, except the machinery and engineering subsectors, exhibit a progressive level of investment.

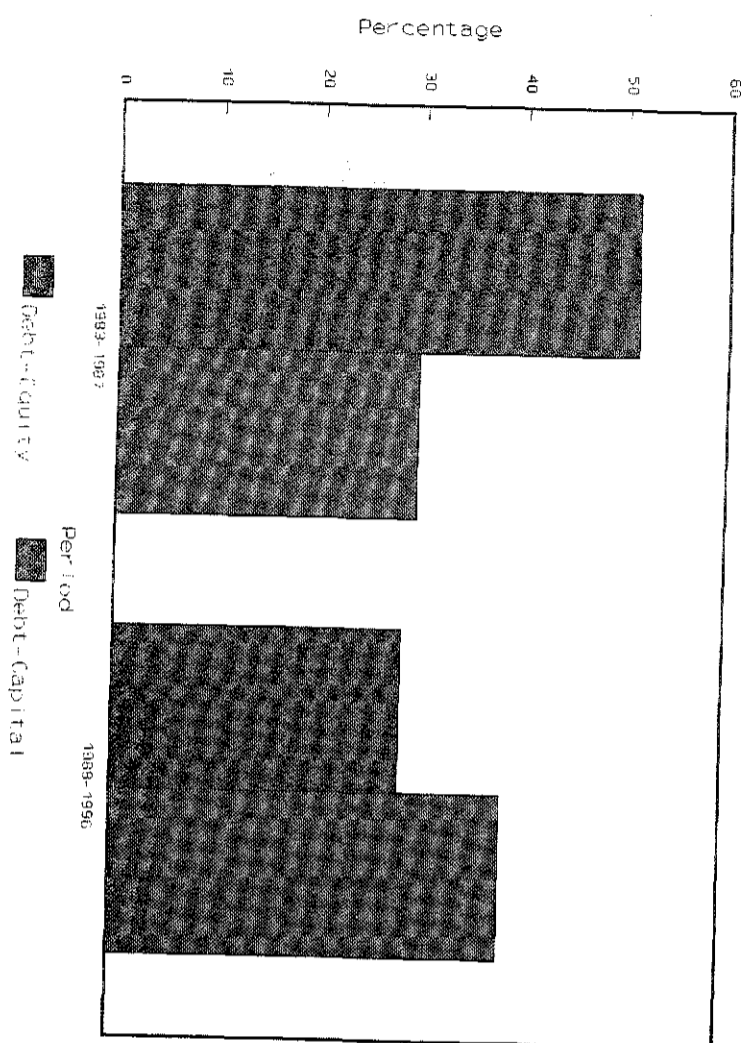


Figure 2: Financial structure of selected companies in Nigeria

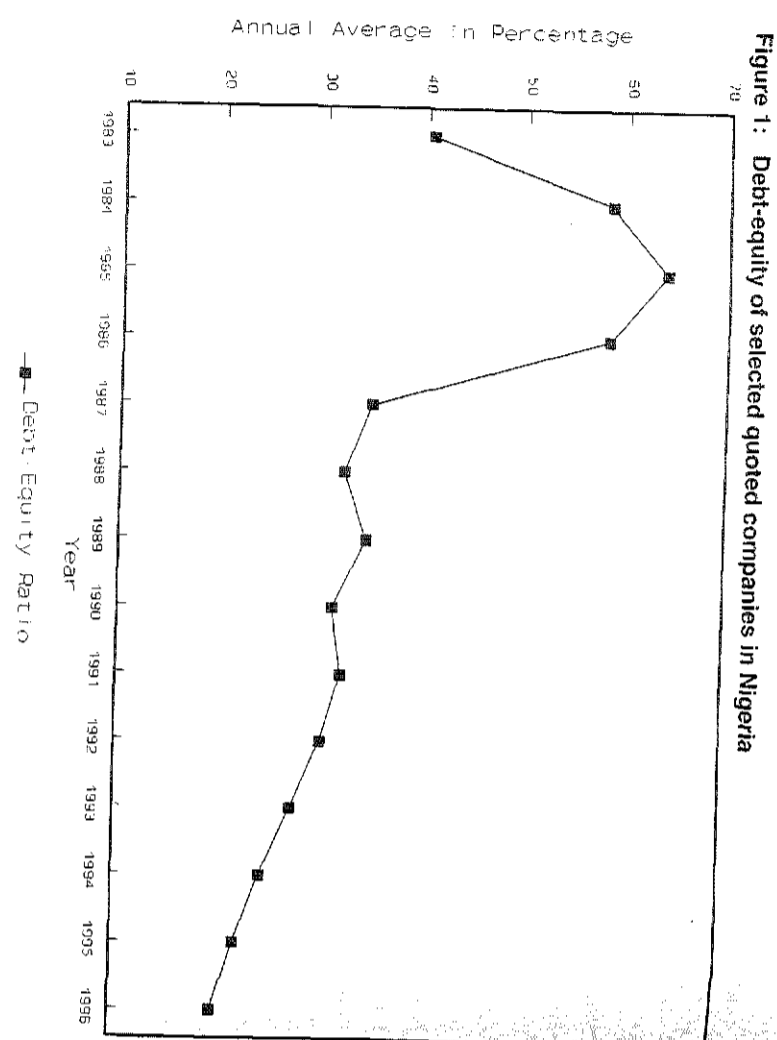


Figure 1: Debt-equity of selected quoted companies in Nigeria

Table 4: Structure of investments of quoted companies in Nigeria, 1983 – 1996 (annual average in Nmillion)

NSE classifications	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Automobile & tyre	1.37	1.33	1.42	1.48	1.52	1.55	1.62	2.46	2.48	3.66	4.39	4.66	4.93	5.19
Breweries	3.10	4.90	4.90	4.90	7.23	4.24	2.60	5.58	4.20	5.29	7.08	7.35	7.62	7.89
Building materials	0.73	0.73	0.38	0.52	1.84	2.43	3.18	1.54	2.21	4.80	7.97	8.24	8.50	8.77
Chemical & paints	14.40	14.40	14.40	14.40	14.40	14.40	14.40	14.40	14.40	14.40	14.40	14.67	14.94	15.20
Commercial	1.23	1.11	1.11	1.16	1.16	1.16	1.16	1.16	1.15	1.96	2.18	2.45	2.71	2.98
Computer & equip.	0.45	1.22	1.09	0.66	1.42	1.42	1.55	0.84	0.84	1.67	1.69	1.96	2.22	2.49
Conglomerates	4.07	4.19	2.79	3.55	11.62	14.74	20.75	18.01	14.33	31.10	61.21	61.48	61.75	62.02
Construction	0.11	0.10	0.10	0.10	0.10	0.26	0.26	0.26	0.30	0.30	0.30	0.57	0.83	1.10
Engineering tech.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.54	0.80
Food & tobacco	6.08	4.51	1.51	0.84	3.66	0.70	3.88	6.08	8.27	6.18	7.26	7.52	7.79	8.06
Footwear	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.30	0.57	0.84
Ind. & domes. prod.	0.25	0.25	0.25	1.30	1.47	0.78	0.78	0.25	3.16	1.40	1.79	2.06	2.32	2.59
Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.54	0.80
Packaging	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.77	1.04	1.30
Petroleum	0.07	0.08	0.08	0.11	0.13	0.19	0.38	0.78	0.61	0.58	1.43	1.70	1.97	2.23
Pharm. & ani. feeds	0.01	0.01	0.02	0.02	0.01	0.02	0.00	0.01	0.21	0.74	0.74	1.01	1.28	1.54
Publishing	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.41	0.40	0.49	0.55	0.82	1.08	1.35
Textiles	1.35	1.35	1.35	1.35	0.93	1.18	5.89	6.78	10.76	10.77	10.82	11.09	11.36	11.62
Second-tier mkt.	0.00	0.00	0.00	0.00	0.00	0.00	5.00	5.00	5.00	5.00	5.00	5.27	5.54	5.80
Yearly average	1.79	1.84	1.59	1.64	2.44	2.31	3.28	3.37	3.62	4.68	6.70	6.97	7.24	7.51

Source: Computed from annual reports and statements of accounts of 105 selected quoted companies in Nigeria (various issues).

On the average, investment rose from ₦1.79 million in 1983 to ₦1.84 million in 1985, declined to ₦1.64 million in 1986, but then jumped to ₦2.44 billion in 1987. With the exception of a slight decline to ₦2.31 million in 1988, investment has been on a steady rise to ₦3.28 million in 1989, ₦3.37 million in 1990, ₦3.62 million in 1991, ₦4.68 million in 1992, ₦6.70 million in 1993 and ₦7.51 in 1996.

This phenomenon can be explained by the increase in level of savings consequent upon deregulation as confirmed by Ndekwu (1988) and Soyibo and Adekanye (1992a). Most firms plough back a reasonable proportion of their annual profits as a strategy for reducing their cost of capital, especially for investment purposes (Soyode 1978; Oyejide, 1972, 1976). The trend, in a sense, confirms the opinion expressed by 31% of the business executives across sectors that liberalization has caused their investments to increase (Table 5). It should also be noted that about 37% of the executives admitted that their gross profits have increased since the liberalization (Table 6). Across sectors, the claims that profits have increased vary from 21% in construction to about 66% in second-tier securities companies. A corresponding 14% on the average have also concluded that their capacity utilization has increased, from 3% in packaging subsector to about 27% in the breweries subsector. Figures 3 and 4 show the structure of investment of selected quoted companies between 1983 and 1996. In the next section, we highlight the real turnover profiles of the companies in this study.

Real turnover profiles of the selected quoted companies

On the whole, it can be seen that the real turnover of companies as mirrored by the selected quoted companies has been on the increase, (Table 7). Available evidence shows that on the average, real turnover declined from ₦1.0 million in 1983 to ₦0.67 million in 1984, but rose to ₦0.72 million in 1986 and to ₦0.90 million in 1987. It declined again to ₦0.69 million in 1988 and further to ₦0.67 million in 1989, but started increasing in 1990 from ₦0.79 million to about ₦1.2 million and ₦1.23 million in 1995 and 1996, respectively. (See also Appendix D).

It will be noted that this trend was confirmed by about 38% of the business people interviewed across the sectors, who admitted that their annual business turnovers have increased in response to interest rate liberalization (Table 5). The increase in unit prices confirmed by about 65% of the business executives (Table 5) accounts for the remarkable growth in the quoted companies' turnovers. In turn, the high turnovers both nominal and real have yielded increased profits, resulting also from more efficient strategies of corporate financing. As a matter of fact, about 33% of the business executives have reported that they have no problem increasing their capital base owing to the remarkable increase in turnover. Figure 5 presents the trend in the real turnover ratio of firms.

Figure 3: Average investment of selected quoted companies in Nigeria

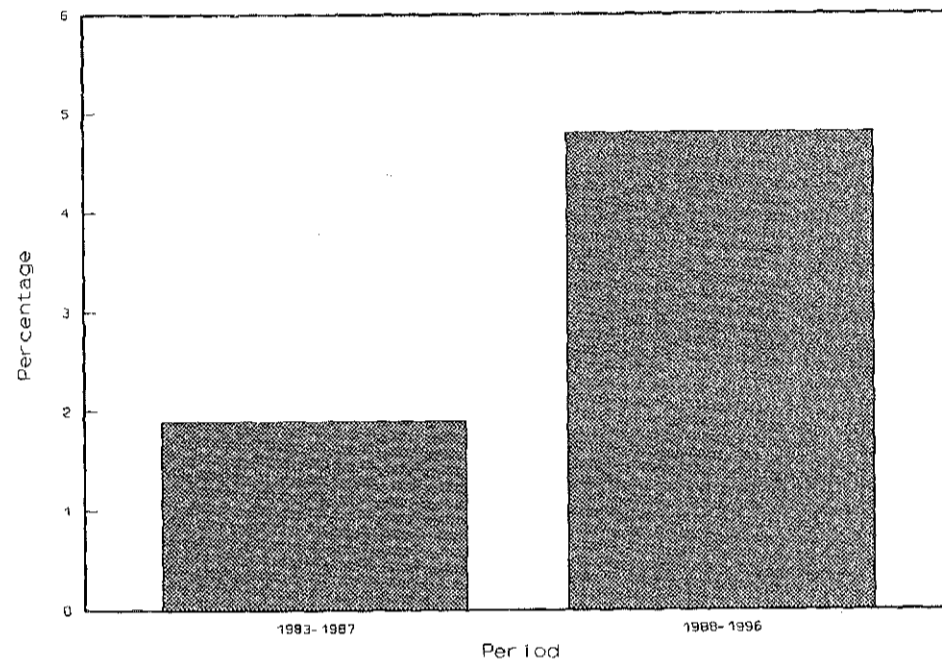


Figure 4: Structure of investment of selected quoted companies in Nigeria

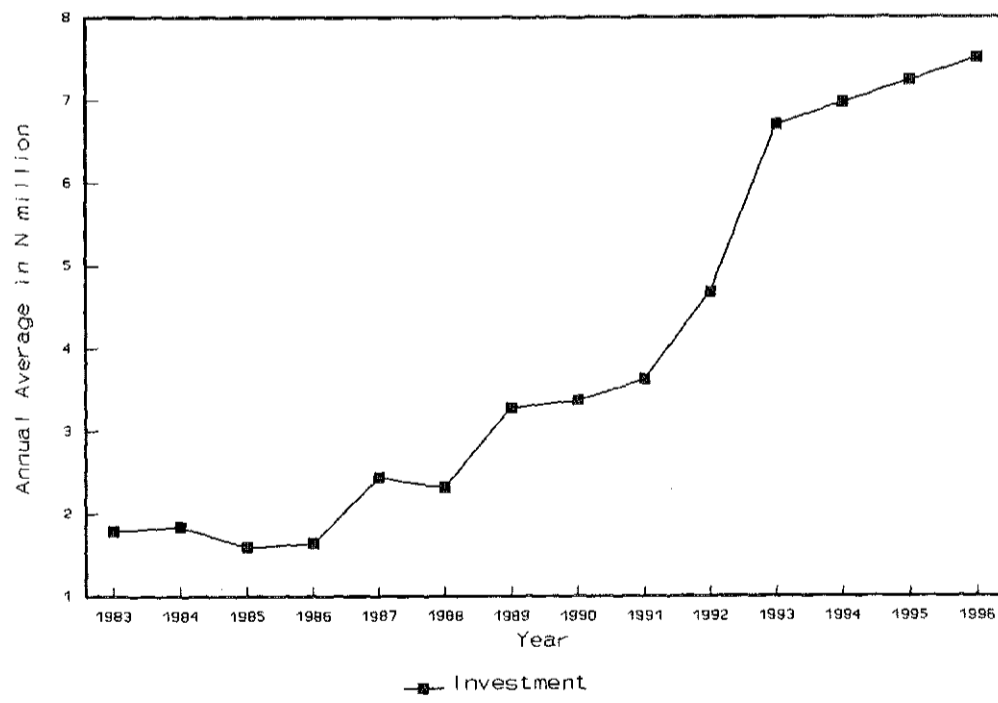


Table 5: Effects of interest rate liberalization programme on selected quoted companies' operations in Nigeria, as reported by business executives (in percentages)

NSE classifications	Production cost			Product price			Demand for product			Turnover		
	Increase	Decrease	Stable	Increase	Decrease	Stable	Increase	Decrease	Stable	Increase	Decrease	Stable
Automobile & tyre	82.00	12.00	6.00	78.00	22.00	0.00	33.00	22.00	45.00	32.00	45.00	23.00
Breweries	70.00	15.00	15.00	62.00	37.00	1.00	22.00	66.00	12.00	47.00	53.00	0.00
Building materials	86.00	6.00	8.00	87.00	13.00	0.00	25.00	67.00	8.00	45.00	52.00	3.00
Chemical & paints	62.00	30.00	8.00	66.00	34.00	0.00	13.00	58.00	29.00	36.00	58.00	6.00
Commercial	56.00	41.00	3.00	58.00	41.00	1.00	27.00	73.00	0.00	48.00	41.00	11.00
Computer & equip.	66.00	34.00	0.00	87.00	9.00	4.00	37.00	63.00	0.00	31.00	47.00	22.00
Conglomerates	70.00	20.00	10.00	82.00	16.00	2.00	17.00	56.00	27.00	33.00	58.00	9.00
Construction	91.00	0.00	9.00	96.00	0.00	4.00	15.00	13.00	72.00	32.00	52.00	16.00
Engineering tech.	73.00	16.00	11.00	58.00	42.00	0.00	23.00	71.00	6.00	14.00	86.00	0.00
Food & tobacco	55.00	45.00	0.00	49.00	39.00	12.00	36.00	64.00	0.00	57.00	43.00	0.00
Footwear	47.00	53.00	0.00	37.00	57.00	6.00	24.00	66.00	10.00	47.00	53.00	0.00
Ind. & domes. prod.	51.00	49.00	0.00	33.00	31.00	36.00	18.00	82.00	0.00	23.00	56.00	21.00
Machinery	82.00	12.00	6.00	87.00	6.00	7.00	16.00	56.00	28.00	37.00	12.00	51.00
Packaging	84.00	16.00	0.00	91.00	9.00	0.00	12.00	47.00	41.00	22.00	77.00	1.00
Petroleum	87.00	12.00	1.00	35.00	34.00	31.00	37.00	13.00	50.00	53.00	47.00	0.00
Pharm. & ani. feeds	62.00	38.00	0.00	44.00	49.00	7.00	22.00	51.00	27.00	23.00	47.00	30.00
Publishing	77.00	23.00	0.00	82.00	14.00	4.00	27.00	45.00	28.00	51.00	42.00	7.00
Textiles	64.00	36.00	0.00	42.00	58.00	0.00	37.00	57.00	6.00	50.00	40.00	10.00
Second-tier mkt.	66.00	34.00	0.00	53.00	47.00	0.00	22.00	56.00	22.00	37.00	46.00	17.00
Yearly average	70.05	25.89	4.05	64.58	29.37	6.05	24.37	54.00	21.63	37.79	50.26	11.95

Source: Field survey, 1994.

Table 6: Effects of interest rates liberalization programme on gross profits, investment and capacity utilization of selected quoted companies in Nigeria, as reported by business executives (in percentages)

NSE classifications	Gross profit			Investment			Capacity utilization		
	Increase	Decrease	Stable	Increase	Decrease	Stable	Increase	Decrease	Stable
Automobile & tyre	22.00	76.00	2.00	21.00	54.00	25.00	10.00	90.00	0.00
Breweries	33.00	56.00	11.00	22.00	36.00	42.00	27.00	24.00	49.00
Building materials	42.00	55.00	3.00	33.00	47.00	20.00	12.00	68.00	20.00
Chemical & paints	29.00	66.00	5.00	23.00	34.00	43.00	14.00	75.00	11.00
Commercial	42.00	56.00	2.00	27.00	15.00	58.00	24.00	66.00	10.00
Computer & equip.	33.00	67.00	0.00	33.00	41.00	26.00	6.00	77.00	17.00
Conglomerates	28.00	56.00	16.00	35.00	42.00	23.00	12.00	45.00	43.00
Construction	21.00	42.00	37.00	13.00	16.00	71.00	13.00	66.00	21.00
Engineering tech.	38.00	58.00	4.00	31.00	40.00	29.00	4.00	73.00	23.00
Food & tobacco	23.00	63.00	14.00	47.00	42.00	11.00	22.00	78.00	0.00
Footwear	37.00	51.00	12.00	52.00	48.00	0.00	12.00	56.00	32.00
Ind. & domes. prod.	41.00	42.00	17.00	45.00	30.00	25.00	15.00	85.00	0.00
Machinery	42.00	52.00	6.00	27.00	45.00	28.00	11.00	87.00	2.00
Packaging	38.00	52.00	10.00	13.00	47.00	40.00	3.00	87.00	10.00
Petroleum	52.00	48.00	0.00	38.00	57.00	5.00	15.00	85.00	0.00
Pharm. & ani. feeds	41.00	38.00	21.00	31.00	48.00	21.00	23.00	56.00	21.00
Publishing	24.00	23.00	53.00	22.00	54.00	24.00	14.00	86.00	0.00
Textiles	52.00	32.00	16.00	47.00	23.00	30.00	12.00	58.00	30.00
Second-tier mkt.	66.00	34.00	0.00	27.00	57.00	16.00	22.00	78.00	0.00
Yearly average	37.05	50.89	12.05	30.89	40.84	28.26	14.26	70.53	15.21

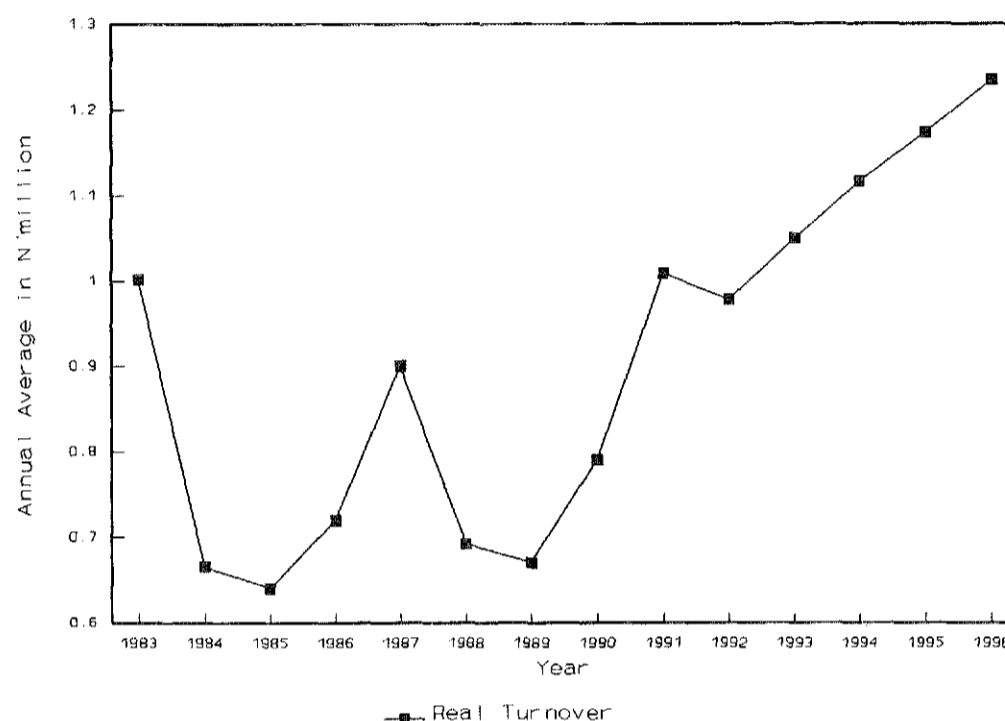
Source: Field survey, 1994.

Table 7: Structure of Real Turnover of Selected Quoted Companies in Nigeria: 1983 – 1996
(Annual average in Nmillion)

NSE classifications	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Automobile & tyre	3.17	1.57	1.40	1.25	0.98	1.07	1.01	1.32	1.70	1.31	1.05	0.74	0.43	0.11
Breweries	2.15	1.47	0.99	0.97	1.17	1.11	1.13	1.52	1.85	2.79	1.05	1.03	0.76	0.50
Building materials	0.66	0.50	0.55	0.71	0.97	0.79	0.78	1.08	1.34	1.67	1.05	0.76	0.47	0.18
Chemical & paints	0.58	0.43	0.35	0.32	0.47	0.45	0.42	0.45	0.56	0.42	1.05	1.08	1.10	1.13
Commercial	0.06	0.04	0.18	0.14	0.13	0.11	0.11	0.14	0.21	0.22	1.05	1.28	1.51	1.74
Computer & equip.	0.30	0.07	0.15	0.16	0.17	0.15	0.14	0.17	0.15	0.19	1.05	1.24	1.43	1.62
Conglomerates	3.67	2.69	2.85	2.61	3.13	2.74	2.78	2.57	3.30	3.11	1.05	1.15	1.27	1.40
Construction	0.84	0.40	0.28	0.50	0.68	0.72	0.79	1.19	1.77	1.83	1.05	0.98	0.91	0.83
Engineering tech.	0.00	0.00	0.00	0.00	0.04	0.10	0.05	0.10	0.14	0.14	1.05	1.42	1.79	2.17
Food & tobacco	1.44	1.00	0.85	0.86	0.80	0.70	0.69	0.89	1.16	1.41	1.05	0.91	0.78	0.64
Footwear	0.38	0.30	0.33	0.32	0.28	0.24	0.22	0.24	0.28	0.45	1.05	1.17	1.29	1.40
Ind. & domes. prod.	0.36	0.20	0.17	0.21	0.24	0.21	0.19	0.24	0.28	0.33	1.05	1.19	1.34	1.48
Machinery	0.15	0.08	0.17	0.12	0.10	0.09	0.08	0.14	0.21	0.15	1.05	1.31	1.56	1.82
Packaging	0.16	0.08	0.08	0.09	0.25	0.23	0.22	0.26	0.30	0.28	1.05	1.18	1.32	1.45
Petroleum	3.56	2.52	2.53	3.99	3.76	2.98	2.68	2.97	3.48	2.45	1.05	1.21	1.39	1.60
Pharm. & ani. feeds	0.32	0.24	0.24	0.25	0.34	0.28	0.23	0.30	0.38	0.43	1.05	1.13	1.22	1.30
Publishing	0.47	0.28	0.27	0.34	2.60	0.22	0.17	0.21	0.24	0.08	1.05	1.22	1.41	1.64
Textiles	0.73	0.62	0.66	0.72	0.94	0.93	0.99	1.19	1.62	1.16	1.05	0.79	0.54	0.28
Second-tier mkt.	0.03	0.13	0.10	0.10	0.04	0.04	0.04	0.05	0.21	0.14	1.05	1.42	1.79	2.16
Yearly average	1.00	0.67	0.64	0.72	0.90	0.69	0.67	0.79	1.01	0.98	1.05	1.12	1.17	1.23

Source: Computed from annual reports and statements of accounts of 105 selected quoted companies in Nigeria (various issues).

Figure 5: Structure of real turnover of selected quoted companies in Nigeria



Profitability profile of the quoted companies

Two analytical measurements are reported in this subsection. First, we identified the ratios of profit before taxation in relation to both the real turnover and the capital stock reflecting the profitability of quoted companies as percentage of sales and fixed assets (tables 8 and 9). Next, we computed the ratios of profit after taxation to equity, capital stock and debt indicating the profitability of equity, capital stock and debt holdings, respectively (tables 10, 11 and 12). It will be recalled that in an effort to liberalize the nation's financial sector, the policy authority in 1987 deregulated the interest rates and relaxed all controls and administrative allocations of credits.

In a way, the results obtained in tables 8 to 12 corroborate the efforts of the government in this direction. For example, the annual ratios of real profit before taxation to real turnover (on the average) increased by about 10.6 percentage points, from about 3.78% in 1983 to about 12.42% in 1987 (Table 9). It further increased to about 13.07% in 1989, but went down to about 12.68% in 1993.

If we consider the average, annual sectoral growth rates of real profit to real sale between the period before the deregulation of interest rates (1983 – 1987) and the period of interest rates liberalization (1988 – 1996), there was greater improvement in industrial performance in the latter period vis-a-vis quoted companies' returns to sales. For example, the rate increased by about 1.27 percentage points, from about 9.45% in 1983 – 1987 to about 10.72% in 1988 – 1996. In actual fact, if the growth rate of profit to sales ratios for

Table 8: Structure of real profit before taxation of selected quoted companies in Nigeria: 1983 – 1996
(annual average in Nmillion)

NSE classifications	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Automobile & tyre	0.050	0.113	0.149	0.141	0.126	0.136	0.162	0.177	0.179	0.211	0.366	0.42	0.47	0.52
Breweries	0.619	0.455	0.325	0.276	0.218	0.249	0.269	0.304	0.383	0.404	0.653	0.51	0.36	0.22
Building materials	0.110	0.109	0.113	0.117	0.153	0.150	0.191	0.256	0.316	0.356	0.261	0.27	0.27	0.28
Chemical & paints	0.054	0.053	0.060	0.042	0.062	0.047	0.051	0.048	0.045	0.038	0.040	0.05	0.06	0.07
Commercial	0.008	0.000	0.007	0.011	0.007	0.008	0.007	0.007	0.010	0.014	0.014	0.01	0.01	0.01
Computer & equip.	0.000	0.000	0.037	0.032	0.046	0.027	0.028	0.025	0.014	0.029	0.027	0.03	0.04	0.05
Conglomerates	0.192	0.200	0.276	0.287	0.282	0.211	0.280	0.177	0.284	0.177	0.270	0.25	0.23	0.21
Construction	0.050	0.024	0.037	0.018	0.034	0.034	0.039	0.051	0.069	0.072	0.110	0.11	0.11	0.11
Engineering tech.	0.000	0.000	0.000	0.000	0.012	0.014	0.004	0.006	0.004	0.002	0.001	0.001	0.002	0.002
Food & tobacco	0.169	0.126	0.147	0.132	0.128	0.089	0.087	0.108	0.141	0.157	0.148	0.18	0.21	0.26
Footwear	0.032	0.037	0.047	0.049	0.020	0.019	0.007	0.008	0.001	0.056	0.006	0.007	0.009	0.010
Ind. & domes. prod.	0.024	0.018	0.014	0.023	0.026	0.020	0.025	0.044	0.052	0.050	0.049	0.05	0.05	0.05
Machinery	0.000	0.000	0.005	0.000	0.009	0.019	0.011	0.012	0.029	0.020	0.016	0.019	0.023	0.027
Packaging	0.000	0.000	0.007	0.000	0.015	0.032	0.041	0.039	0.051	0.060	0.042	0.050	0.061	0.073
Petroleum	0.336	0.238	0.260	0.205	0.268	0.187	0.201	0.190	0.249	0.260	0.319	0.382	0.459	0.551
Pharm. & ani. feeds	0.034	0.044	0.056	0.047	0.053	0.035	0.065	0.015	0.050	0.046	0.070	0.07	0.07	0.07
Publishing	0.026	0.000	0.005	0.035	0.011	0.010	0.008	0.015	0.025	0.010	0.010	0.012	0.015	0.018
Textiles	0.000	0.061	0.095	0.125	0.128	0.113	0.098	0.076	0.076	0.109	0.116	0.140	0.167	0.201
Second-tier mkt.	0.002	0.002	0.017	0.009	0.006	0.005	0.004	0.005	0.008	0.002	0.009	0.01	0.01	0.01
Yearly average	0.083	0.071	0.087	0.081	0.084	0.074	0.083	0.082	0.105	0.109	0.133	0.135	0.139	0.145

Source: Computed from annual reports and statements of accounts of 105 selected quoted companies in Nigeria (various issues).

Table 9: Real profit before taxation-real turnover ratios of selected quoted companies in Nigeria: 1983 – 1996

NSE Classifications	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Automobile & tyre	1.57	7.21	10.65	11.27	12.81	12.63	16.08	13.41	10.56	16.12	34.89	56.71	110.48	458.37
Breweries	28.75	30.92	32.90	28.44	18.71	22.32	23.89	19.98	20.71	14.48	62.22	49.44	47.25	42.79
Building materials	16.55	21.94	20.67	16.33	15.84	18.90	24.53	23.77	23.69	21.32	24.84	35.14	58.08	154.10
Chemical & paints	9.27	12.49	16.96	13.18	13.33	10.35	12.25	10.59	7.95	8.96	3.85	4.51	5.29	6.20
Commercial	13.46	0.00	4.22	7.33	5.58	7.53	6.03	4.85	4.56	6.34	1.35	1.09	0.91	0.77
Computer & equip.	0.00	0.00	24.99	20.62	26.62	18.28	19.30	14.91	9.35	14.99	2.55	2.60	2.70	2.86
Conglomerates	5.25	7.45	9.70	11.00	9.00	7.70	10.06	6.89	8.61	5.67	25.73	21.76	18.29	15.28
Construction	5.90	5.98	12.94	3.57	5.06	4.72	4.86	4.32	3.93	3.97	10.48	11.42	12.50	13.78
Engineering tech.	0.00	0.00	0.00	0.00	29.26	14.63	8.62	6.06	2.95	1.43	0.11	0.10	0.09	0.09
Food & tobacco	11.79	12.63	17.18	15.23	16.01	12.74	12.57	12.11	12.12	11.07	14.12	19.45	27.41	39.82
Footwear	8.42	12.20	14.57	15.37	7.02	7.78	3.31	3.58	0.20	12.34	0.57	0.61	0.67	0.73
Ind. & domes. prod.	6.56	8.92	8.23	10.70	11.00	9.56	13.54	18.67	18.50	14.85	4.69	4.14	3.71	3.37
Machinery	0.00	0.00	2.75	0.06	8.92	21.46	14.00	8.24	13.30	13.30	1.51	1.45	1.46	1.50
Packaging	0.00	0.00	8.25	0.00	6.14	14.08	18.37	14.96	17.46	21.57	4.01	4.26	4.59	5.00
Petroleum	9.44	9.47	10.28	5.13	7.11	6.28	7.49	6.39	7.16	10.63	30.37	31.69	33.07	34.50
Pharm. & ani. feeds	10.60	18.08	23.46	18.54	15.50	12.57	28.24	5.10	13.14	10.63	6.62	6.17	5.78	5.43
Publishing	5.50	0.00	1.65	10.41	0.41	4.46	4.67	6.93	10.52	12.68	0.97	1.01	1.04	1.08
Textiles	0.00	9.78	14.38	17.31	13.61	12.19	9.90	6.42	4.70	9.41	11.09	17.61	31.22	71.72
Second-tier mkt.	5.03	1.40	16.16	8.78	14.07	12.22	10.67	10.44	3.69	1.11	0.90	0.74	0.65	0.59
Yearly average	3.78	1.61	13.15	10.42	12.42	12.13	13.07	10.40	10.16	11.10	12.68	14.21	19.22	45.16

Source: Computed from appendixes D and E.

Table 10: Real profit after taxation-equity ratios of selected quoted companies in Nigeria: 1983 – 1996

NSE classifications	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Automobile & tyre	0.05	0.10	0.14	0.12	0.09	0.15	0.06	0.15	0.14	0.09	0.08	0.09	0.09	0.10
Breweries	0.50	0.24	0.20	0.16	0.12	0.07	0.07	0.05	0.06	0.05	0.08	0.05	0.03	0.02
Building materials	0.20	0.18	0.16	0.15	0.16	0.13	0.13	0.11	0.11	0.10	0.07	0.07	0.06	0.06
Chemical & paints	0.19	0.18	0.18	0.12	0.16	0.11	0.11	0.05	0.04	0.03	0.03	0.03	0.04	0.04
Commercial	0.06	0.00	0.07	0.07	0.03	0.04	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Computer & equip.	0.00	0.00	0.19	0.16	0.24	0.07	0.07	0.04	0.03	0.05	0.03	0.04	0.04	0.05
Conglomerates	0.18	0.16	0.20	0.18	0.13	0.09	0.06	0.03	0.04	0.03	0.03	0.02	0.02	0.02
Construction	0.19	0.09	0.14	0.06	0.15	0.07	0.11	0.13	0.11	0.09	0.08	0.08	0.08	0.08
Engineering tech.	0.00	0.00	0.00	0.00	0.04	0.05	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00
Food & tobacco	0.33	0.22	0.23	0.19	0.18	0.11	0.09	0.08	0.09	0.08	0.08	0.09	0.10	0.11
Footwear	0.27	0.28	0.26	0.14	0.06	0.05	0.02	0.02	0.00	0.10	0.01	0.01	0.01	0.01
Ind. & domes. prod.	0.10	0.08	0.06	0.08	0.11	0.06	0.06	0.08	0.08	0.06	0.04	0.04	0.04	0.03
Machinery	0.00	0.00	0.03	0.00	0.05	0.06	0.03	0.03	0.06	0.04	0.03	0.03	0.04	0.05
Packaging	0.00	0.00	0.03	0.00	0.03	0.07	0.08	0.06	0.07	0.05	0.03	0.04	0.04	0.04
Petroleum	0.39	0.25	0.25	0.18	0.20	0.13	0.03	0.09	0.08	0.07	0.08	0.09	0.10	0.11
Pharm. & ani. feeds	0.23	0.26	0.30	0.19	0.17	0.11	0.14	0.02	0.07	0.06	0.08	0.07	0.07	0.06
Publishing	0.13	0.00	0.03	0.18	0.05	0.04	0.03	0.05	0.07	0.02	0.02	0.03	0.03	0.04
Textiles	0.00	0.30	0.36	0.35	0.20	0.13	0.05	0.03	0.03	0.04	0.04	0.04	0.04	0.05
Second-tier mkt.	0.02	0.02	0.18	0.12	0.07	0.06	0.04	0.04	0.04	0.01	0.05	0.06	0.07	0.07
Yearly average	0.12	0.08	0.16	0.13	0.12	0.08	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05

Source: Computed from Appendixes A and E.

Note: Real profit after tax = real profit before tax - annual tax deductions.

Table 11: Real profit after taxation-debt ratios of selected quoted companies in Nigeria: 1983 – 1996

NSE classifications	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Automobile & tyre	0.095	0.196	0.235	0.202	0.340	0.242	0.106	0.265	0.082	0.092	0.095	0.114	0.135	0.158
Breweries	4.772	3.947	4.653	2.537	2.090	1.463	0.779	0.941	1.036	0.927	1.366	1.117	0.837	0.525
Building materials	0.276	0.311	0.424	0.421	0.223	0.420	0.386	0.334	0.797	0.278	0.281	0.303	0.326	0.352
Chemical & paints	0.665	0.543	0.695	0.499	0.947	1.010	1.087	0.429	0.396	0.337	0.201	0.254	0.320	0.405
Commercial	0.052	0.000	0.026	0.028	0.048	0.057	0.039	0.038	0.056	0.043	0.034	0.036	0.037	0.038
Computer & equip.	0.000	0.000	0.717	1.299	2.667	0.942	0.321	1.775	0.784	0.249	0.110	0.139	0.176	0.222
Conglomerates	0.432	0.448	0.622	0.734	0.549	0.555	0.298	0.083	0.120	0.131	0.183	0.179	0.174	0.168
Construction	3.615	1.760	2.685	1.202	0.736	0.713	0.061	0.081	0.103	0.083	0.123	0.131	0.140	0.149
Engineering tech.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Food & tobacco	0.982	1.121	0.996	1.853	1.070	0.502	0.356	0.475	0.312	0.197	0.268	0.338	0.427	0.539
Foot wear	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ind. & domes. prod.	0.354	0.399	0.455	0.176	0.088	0.065	0.089	0.162	0.144	0.122	0.057	0.061	0.064	0.068
Machinery	0.000	0.000	0.023	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Packaging	0.000	0.000	0.013	0.000	0.075	0.211	0.269	0.257	0.343	0.397	0.247	0.312	0.394	0.498
Petroleum	23.89	3.39	4.030	2.575	3.008	2.830	2.033	0.000	0.000	0.954	0.705	0.891	1.125	1.421
Pharm. & ani. feeds	0.921	1.215	1.507	1.547	0.974	0.170	0.977	0.231	0.372	0.249	0.520	0.550	0.582	0.615
Publishing	0.056	0.000	0.011	0.072	0.049	0.054	0.045	0.084	0.147	0.171	0.089	0.113	0.143	0.180
Textiles	0.000	0.757	1.406	1.951	0.454	0.299	0.139	0.080	0.077	0.062	0.058	0.074	0.093	0.117
Second-tier mkt.	0.000	0.132	0.440	0.180	0.085	0.070	0.063	0.053	0.106	0.022	0.142	0.167	0.195	0.225
Yearly average	1.76	0.57	1.00	0.80	0.71	0.51	0.37	0.28	0.26	0.23	0.24	0.25	0.27	0.30

Source: Computed from Appendixes B and E.

Note: Real profit after tax = real profit before tax - annual tax deductions.

Table 12: Structure of turnover, profitability and investments of selected quoted companies in Nigeria: 1983 – 1996
(summary statistics in percentages)

NSE classifications	S/Y		S/K		P/K		I/K		P/D		P/E	
	1983-87	1988-96	1983-87	1988-96	1983-87	1988-96	1983-87	1988-96	1983-87	1988-96	1983-87	1988-96
Automobile & tyre	8.70	81.03	0.18	0.12	0.11	0.07	2.17	1.45	0.214	0.143	0.020	0.010
Breweries	27.94	33.67	0.52	0.11	0.31	0.06	6.85	1.67	3.600	0.999	0.045	0.005
Building materials	18.27	42.71	0.15	0.18	0.09	0.11	1.07	3.66	0.331	0.386	0.033	0.009
Chemical & paints	13.05	7.77	0.38	0.18	0.23	0.11	101.98	53.43	0.670	0.493	0.033	0.005
Commercial	5.65	3.71	0.05	0.02	0.03	0.01	8.20	3.54	0.030	0.042	0.009	0.001
Computer & equip.	12.31	9.73	0.21	0.11	0.12	0.07	11.43	6.10	0.855	0.524	0.019	0.005
Conglomerates	8.48	13.33	0.28	0.07	0.17	0.04	5.86	10.74	0.557	0.210	0.033	0.003
Construction	6.69	7.77	0.17	0.06	0.10	0.04	0.55	0.37	2.000	0.176	0.025	0.009
Engineering tech.	5.85	3.79	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.009	0.001
Food & tobacco	14.57	17.93	0.34	0.18	0.20	0.11	7.94	7.35	1.204	0.379	0.045	0.010
Foot wear	11.52	3.31	0.36	0.06	0.21	0.03	0.35	0.87	0.000	0.000	0.032	0.003
Ind. & domes. prod.	9.08	10.11	0.08	0.10	0.05	0.06	2.54	3.70	0.294	0.093	0.017	0.005
Machinery	0.00	8.47	0.00	0.10	0.00	0.06	0.00	0.90	0.000	0.000	0.000	0.005
Packaging	0.00	11.59	0.00	0.14	0.00	0.08	1.90	1.91	0.010	0.325	0.000	0.005
Petroleum	8.29	18.62	0.34	0.17	0.21	0.10	0.12	0.59	7.376	1.107	0.049	0.009
Pharm. & ani. feeds	17.24	10.41	0.41	0.18	0.25	0.11	0.09	2.08	1.233	0.474	0.044	0.008
Publishing	1.81	4.82	0.04	0.04	0.03	0.03	1.28	1.99	0.026	0.114	0.011	0.004
Textiles	10.88	19.36	0.26	0.08	0.15	0.05	4.01	6.17	0.905	0.111	0.050	0.005
Second-tier mkt.	9.09	4.56	0.20	0.09	0.12	0.05	0.00	54.19	0.167	0.116	0.016	0.005
Periodic average	8.28	16.46	0.19	0.11	0.12	0.06	8.23	8.46	0.97	0.30	0.02	0.01

Source: Computed from Appendixes A, B, C, D and E.

Notes: Y = real turnover, S = real profit before tax, P = real profit after tax, K = capital stock (fixed assets), D = debt, I = investment, and E = equity.

the period 1988 – 1996 is compared with that of all the years under investigation (1983 – 1996), it is greater by about 0.80 percentage points (on the periodic average) from about 9.92% to about 10.72% (tables 8 and 9).

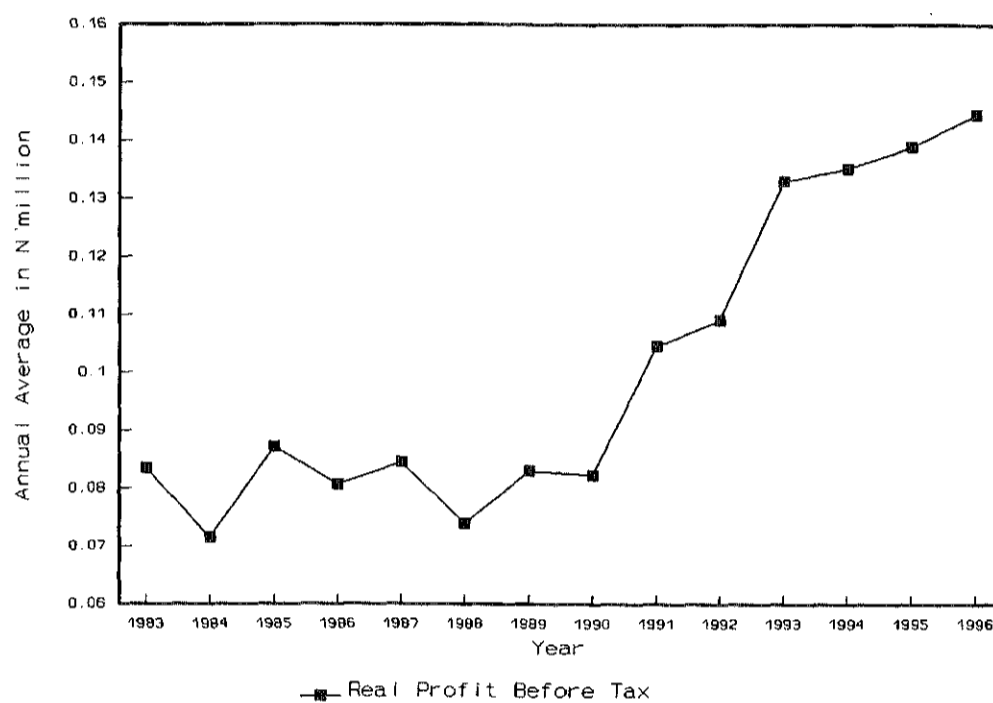
This impressive performance is further corroborated as shown in Table 8, which depicts the real profit before taxation structure of quoted companies. From this table, the sectoral real profit (on the average) increased by 1.20%, from ₦0.083 million in 1983 to ₦0.084 million in 1987 (i.e., the starting period of interest rate deregulation). It increased astronomically by 58.33% in 1993 from about ₦0.084 million in 1987 to about ₦0.145 million in 1996. On micro analysis, in 9 of the 19 sectors the annual sectoral real growth rates increased from 1987 to 1996. These sectors are automobile and tyre; breweries; building materials; commercial; conglomerates; construction; food, beverages and tobacco; packaging; and petroleum (See also Appendix E.)

The information in Table 10 shows that sectoral real profit-equity ratios were mixed. On the average, the yearly sectoral percentage, which was about 0.12% in 1983, declined to about 0.08% in 1984. It moved up to 0.16% in 1985, however, and since then has declined annually. It went down to about 0.05% from 1992 to 1996. If we compare the rate during the pre-liberalization period (1983–1987) with the rate during the post-liberalization period, we see a decline by about 0.07 percentage points. In the same vein, the real profit after tax-capital stock declined by about 0.05 percentage points (Table 12).

Actually, our statistical summaries in percentages in tables 2 and 10 show that (on the average) the periodic sectoral debt-equity ratio during the pre-liberalization period is larger than the periodic sectoral real profit after tax-equity ratio during the period. Also, during the post-liberalization era, the sectoral debt-equity ratio is larger than the sectoral real profit after tax-equity ratio during the period. The two indicators (debt-equity ratio and profit-equity ratio) show a declining trend, however. The implication of these results is that while the quoted companies tend to shy away from debt finance, they also tend to use a declining rate of internal sources of finance. In actual fact, if we examine the firms' real profit after taxation debt ratios in Table 11, we will discover a declining trend. For example, the ratio, which was about 1.76% in 1983, fell to 0.57% in 1984. It moved up to 1.0% in 1985, but started declining then until it reached the minimum of 0.23% in 1992. It went up slightly in 1993 to 0.24%, to 0.27% in 1995 and to 0.30% in 1996. Table 11 shows that the real profit after tax-debt ratio, which was about 0.76% during the pre-liberalization era, declined to about 0.29% during the post-liberalization period.

The general observation one can make in relation to these findings is that quoted companies relied much more on equity finance than on debt finance during the post-liberalization period (Table 2). Equally, some of the companies have resorted to internal finance in the presence of agency costs, bankruptcy, transaction costs, asymmetric information, etc. Thus, the trend after the liberalization of interest rates indicates that firms are using their internal sources of equity, probably due to the increased cost of finance in the money market as well as a trade-off mechanism to avoid too high a level of debt, which might increase their risks of bankruptcy or financial distress in an economic downturn. Moreover, the choice of internal sources as well as equity finance may be connected with the lower tax costs on equity finance, if compared with debt finance. In a nutshell, the behaviour of these companies in Nigeria was perfectly in line with the new theoretical arguments that assumed that firms usually choose the source of finance

Figure 6: Structure of real profit before taxation of selected quoted companies in Nigeria



that maximizes their current share value. Therefore, this behaviour usually leads to an optimal debt-equity ratio for these firms (Auerbach, 1979; Auerbach and King, 1983; Miller, 1988; Lyon, 1992).

Econometric results

In this section, two analytical measurements are done. First, we examine the relationship between the investment structure and five explanatory variables that encompass the debt finance, equity finance and internal finance of the selected 105 quoted companies in Nigeria during the pre-liberalization programme. Second, we examine whether the adopted liberalization programme of 1987 has some impact on the capital structure and investment decisions of the selected companies using eight explanatory variables.

The results presented in the first column of Table 13 show that out of the five explanatory variables only three have significant effects on the dependent variable during the pre-liberalization programme. The three variables are the lagged investment-capital ratio, the leverage ratio (debt-capital ratio) and the change in turnover-capital ratio. Although the coefficients of the leverage ratio (debt-capital ratio) and the lagged investment-capital ratio have some positive as well as some strong significant effects on investment, the coefficient of the change in turnover-capital ratio is not only negatively related to investment but with less significant effects during the pre-liberalization programme. Also, the effects of cash flow (profit before tax-capital ratio) and the leverage ratio (debt-equity ratio) are negative and not significant. The implication of these results is that before the introduction of the liberalization programme in 1987 (i.e., 1983–1987), the majority of these quoted companies relied mainly on debt finance.

The results of our second regression analysis, which examines the situation during the adoption of the liberalization programme (1988–1996), as presented in the second column of Table 13, show that out of the eight explanatory variables, only five — lagged investment-capital ratio, cash flow (profit before tax-capital ratio), leverage ratios (debt-capital ratio and debt-equity ratio), and the dummy variable (profit before tax-capital ratio)—are statistically significant.

Table 13: Econometric regression results

Dependent variable (I_{it}/K_{it-1})			
Included observations (N) = 105			
	Explanatory variables	Before liberalization (1983-87)	After liberalization (1988-96)
No.	Constants (Std. error) (T-statistic)	0.067165 (0.057018) (1.177960)	0.067302 (0.058042) (1.159540)
1	(I_{it-1}/K_{it-2}) (Std. error) (T-statistic)	0.956560 (0.194384) (4.920988)	0.832418 (0.183132) (4.545454)
2	$(\Delta Y_{it-1}/K_{it-1})$ (Std. error) (T-statistic)	-0.009960 (0.005204) (-1.913915)	-0.005464 (0.005949) (-0.918469)
3	(P_{it}/K_{it-1}) (Std. error) (T-statistic)	-0.019260 (0.044583) (-0.432012)	0.981811 (0.226007) (4.344167)
4	(D_{it-1}/K_{it-1}) (Std. error) (T-statistic)	0.503111 (0.104790) (4.801159)	0.444390 (0.100664) (4.414600)
5	(D_{it-1}/E_{it-1}) (Std. error) (T-statistic)	-0.014482 (0.055301) (-0.261884)	-0.099505 (0.058881) (-1.689944)
6	$(DumP_{it}/K_{it-1})$ (Std. error) (T-statistic)	- - -	-0.523545 (0.116268) (-4.502930)
7	$(DumD_{it}/K_{it-1})$ (Std. error) (T-statistic)	- - -	-0.029865 (0.058559) (-0.510000)
8	$(DumD_{it}/E_{it-1})$ (Std. error) (T-statistic)	- - -	0.014850 (0.042497) (0.349428)
	R-squared	0.371273	0.484210
	Adjusted R-squared	0.339519	0.441227
	Durbin-Watson stat	1.967913	1.974050
	F-statistic	11.69220	11.26526

Source: Computed.

Three of the five variables — the lagged investment-capital ratio, the leverage ratio (the debt-capital ratio) and the cash flow (profit before tax-capital) — have some strong positive effects on investment structure and are also statistically significant. The two remaining statistically significant variables — debt-equity ratio and dummy variable (profit before tax-capital ratio) — exhibit a negative relationship with the dependent variable. Out of the three variables with strong positive relationships, the coefficient of the lagged investment-capital ratio is the most significant, followed by the coefficient of the debt-capital ratio. However, the coefficients of all three variables (investment-capital ratio, debt-capital ratio and profit before tax-capital ratio) exhibit a declining rate in 1988–1996; the coefficient of cash flow (profit before tax-capital ratio) became positive and strongly significant in 1988–1996 in spite of its negative position in 1983–1987. Also, the coefficient of the debt-equity ratio, which was not significant during the pre-liberalization period (1983–1987), was significant with negative relationship. Our regression analysis results thus further corroborated the statistical investigations confirming the predominant role of equity finance supported by internal sources of finance especially during the post-liberalization period (1988–1996).

Interview results

Tables 5 and 6 summarized the opinions expressed by the business executives during the interviews. Issues discussed centre mainly on the perceived effects of liberalized interest rates on critical variables such as production cost, product prices, demand for product, turnover, gross profits, investment and capacity utilization. The summary of the discussions is also shown graphically in figures 7 to 10. In a nutshell, the survey revealed that companies combined bank loans, credit purchase, debentures and private loans as sources of funds. Of all the sources mentioned new equity is the most frequently used, followed by credit purchase. Bank loans are also viable alternatives.

Further, most respondents said the prevailing interest rates were high, and as a result they have had to alter their financial mobilization strategies (Figure 10). Similarly, a majority of the business executives claimed that production costs increased tremendously after liberalization, sparking increased product prices, especially under the prevailing markup pricing regime. As a result, according to most respondents demand for products had declined. Turnover also declined as a consequence because of the suppressed demand for goods and services. Next in the line to be affected was gross profits, which about 50% of the respondents reported had also decreased.

Under this situation, investment also declined. Combined, these forces reduced the capacity utilization of most firms. The report of the central bank as well as that of the Manufacturer Association of Nigeria (MAN) confirmed that capacity utilization of most firms is still about 30%. This trend warrants attention (Figures 7 to 10), but a look at the results from the account shows that the situation is not as absolutely gloomy as they claim.

Figure 7: Sources of funds for selected quoted companies in Nigeria

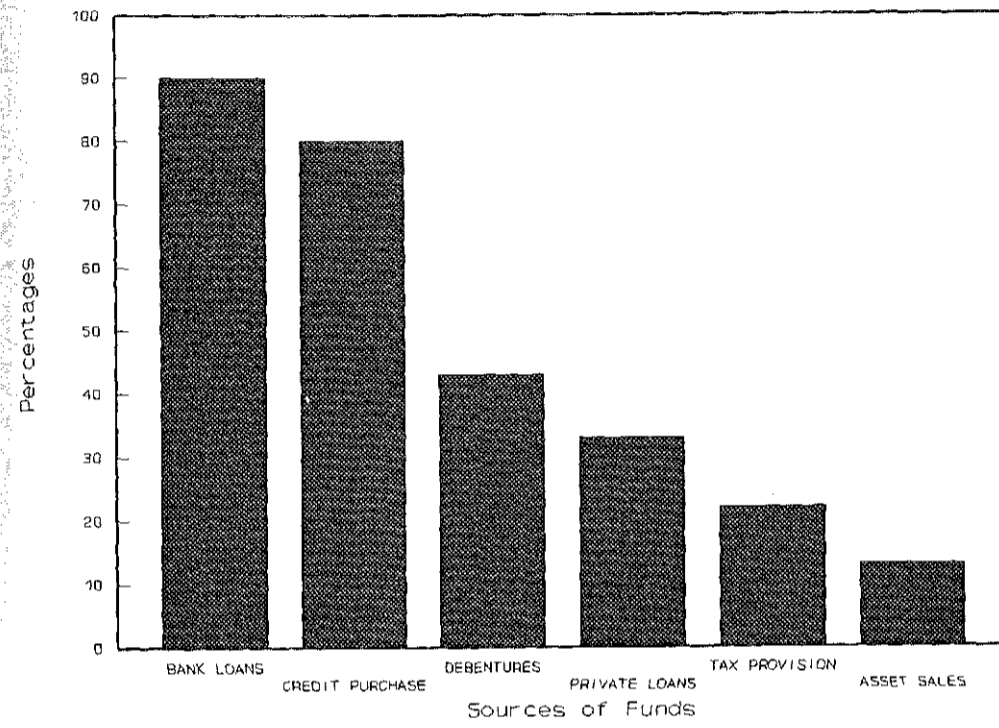


Figure 8: Sources of funds most preferred by selected quoted companies in Nigeria

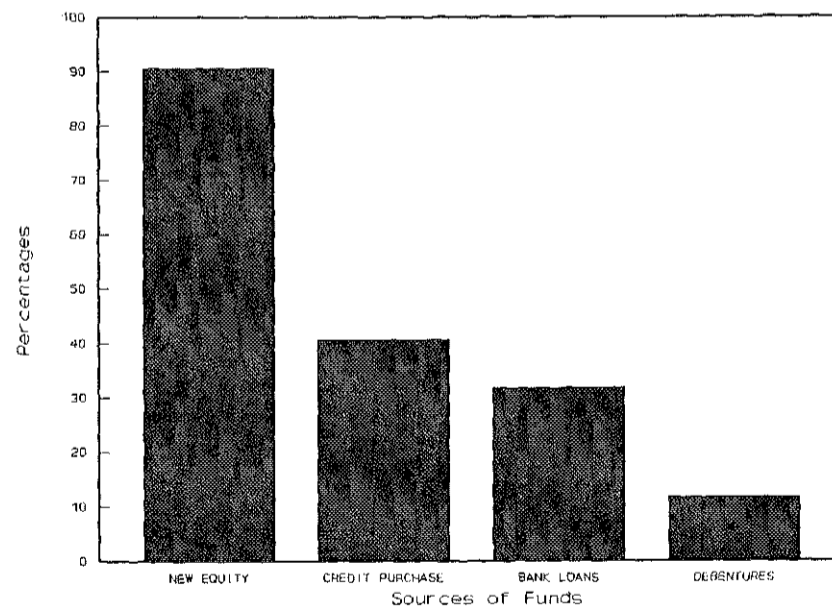


Figure 9: Perception of selected quoted companies on prevailing interest rates in Nigeria

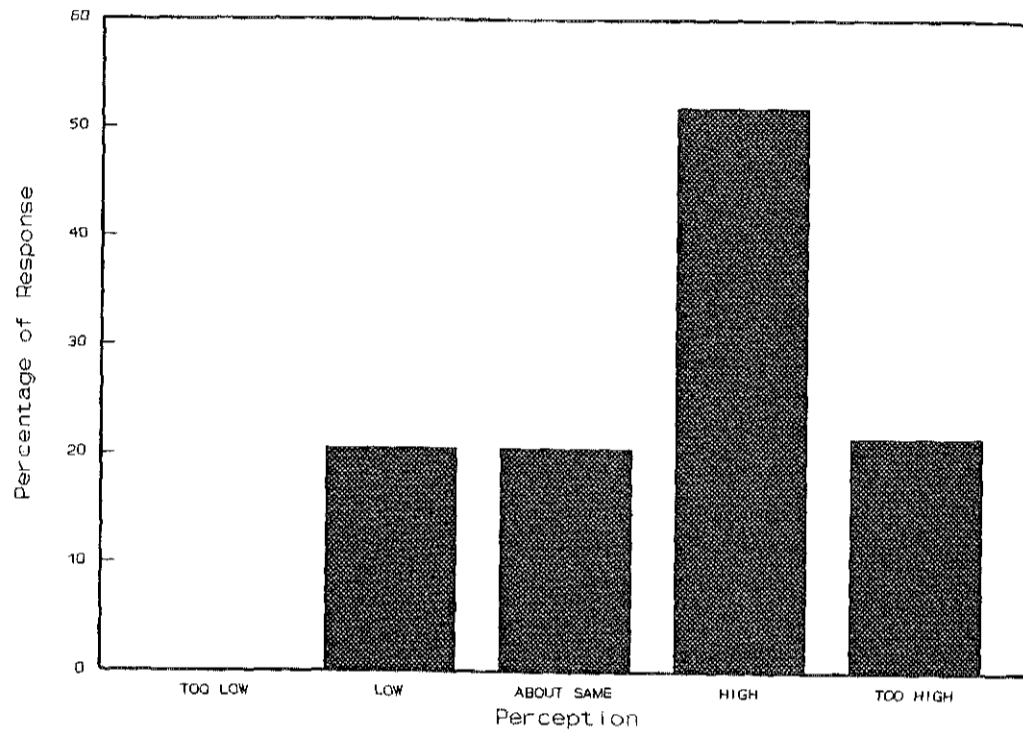
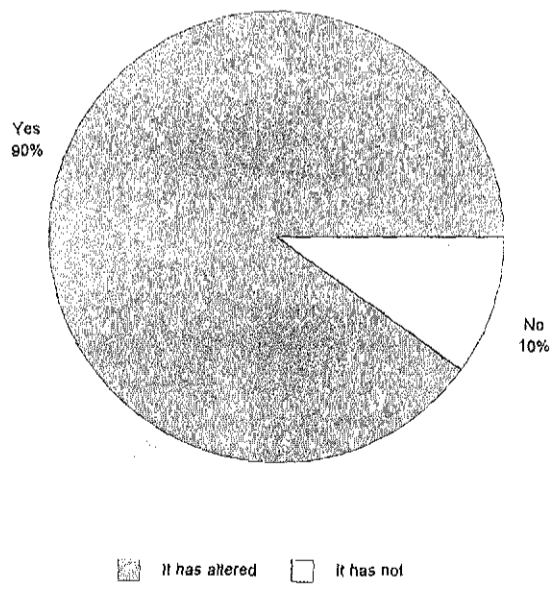


Figure 10: Whether financial strategy altered during liberalisation



VI. Conclusion

Summary of findings

This study has revealed in detail the varying impact of interest rate liberalization on the corporate financing strategies of selected quoted companies in Nigeria. The study identified various indicators influenced by the liberalized interest rates, including the financing mix adopted by the companies. In the process, it highlighted the link between interest rates and corporate financing, based on the opinions expressed by the business executives and the data collected from the final accounts and balance sheets of the companies.

The effects of liberalization on the financing strategies are significant. More importantly, the effect of liberalization on corporate performance is more revealing as indicated by the firms' turnover, gross profits and investments, all of which decreased marginally in a few cases but increased considerably in many others, after the liberalization of the money market. The significant effect of the liberalization on the growth and resilience of the capital market was also highlighted. The decline in the debt-equity ratios implies that firms rely on and use the capital market for raising additional funds thereby giving some impetus to the activities of the stock market, which in itself is undergoing a form of market liberalization. The direct effect of interest rates on corporate investment is indeed considerable.

Notably, investment is mainly determined by the availability of savings and the level of output expected. Investment has been affected as a consequence. However, the effects have been mixed. Overall, the direct and indirect impact of interest rate liberalization has been substantial. The main policy implication arising from our findings is that interest rate policy can be used to influence both the corporate performance of industries and the growth of the capital market.

From all indications, our findings support the position expressed by Sundararajan (1987), who contends that there exists an optimal debt equity mix for firms and that firms strive to obtain a debt equity mix that minimizes costs. By implication, the study refutes the Modigliani and Miller (1958) postulates that a unique optimal debt-equity ratio does not exist. Equally, this finding agrees with signaling models (Spence, 1973), which state that corporate financial behaviour adjusts discretely to changes in earnings as dictated by cost of capital (interest rates in this case).

Policy recommendations

Given the foregoing, liberalizing the interest rates, though desirable for its influence on increased financial mobilization, would not be enough in itself. Effort is also required in the area of developing the capital market to absorb the likely increased demand for investible funds. Other policies, such as measures to promote equity markets, raise corporate savings or even encourage inflow of foreign capital, are needed as complements to interest rate liberalization. Reforms to fully integrate the financial markets (both the money and capital markets) are necessary conditions not only to improve the effectiveness of interest rate policy, but also to synchronize the revealed benefits of liberalization.

Moreover, complementary policies, such as industrial incentives (that is tax reliefs, reduction in tariffs and provision of basic infrastructural facilities) to cushion the effects of interest rate liberalization on industrial operations and investment returns, are desirable, given the prominent roles played by such industries in development. Such assistance is capable of fostering not only industrial development, but economic development in general—a central objective of economic liberalization.

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Appendices



Appendix A: Structure of equity of selected quoted companies in Nigeria, 1983 – 1996
(annual average in Nmillion)

NSE classifications	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Automobile & tyre	63.38	66.89	63.78	69.03	82.80	52.68	174.26	71.86	78.47	141.66	292.66	294.964	297.264	299.565
Breweries	74.09	115.80	98.16	104.12	112.18	199.17	238.12	339.38	412.49	461.42	518.01	576.716	635.420	694.125
Building materials	32.57	36.24	41.17	46.60	59.00	69.91	85.94	136.14	174.64	213.72	214.71	242.916	271.126	299.336
Chemical & paints	16.84	18.10	19.67	20.91	23.68	25.64	29.12	59.42	63.91	69.88	81.64	87.808	93.975	100.142
Commercial	7.88	6.00	6.61	8.55	15.79	14.45	25.58	46.44	59.05	70.15	104.35	115.511	126.667	137.823
Computer & equip.	10.04	9.17	11.40	12.52	11.74	22.54	24.48	34.40	31.05	37.50	51.80	54.704	57.605	60.507
Conglomerates	63.47	74.54	83.49	95.31	132.91	143.75	264.21	308.73	387.26	420.04	599.30	655.062	710.829	766.595
Construction	15.55	15.94	15.95	16.78	13.52	29.92	20.92	24.45	37.58	50.40	81.37	84.500	87.628	90.756
Engineering tech.	0.00	0.00	0.00	0.00	16.70	16.70	17.67	17.67	30.00	34.33	39.13	46.961	56.353	67.624
Food & tobacco	31.05	34.02	38.78	41.58	43.41	50.35	58.53	76.48	96.62	113.81	115.25	123.833	132.417	141.000
Footwear	7.09	7.94	11.11	20.97	21.19	22.80	23.80	25.24	25.70	34.41	38.35	41.922	45.492	49.062
Ind. & domes. prod.	13.93	14.16	14.74	16.75	14.76	20.57	27.40	34.04	40.93	48.50	76.94	80.325	83.715	87.104
Machinery	16.08	8.01	8.53	7.92	11.57	18.48	20.53	22.35	29.01	32.34	33.23	33.261	33.288	33.314
Packaging	13.19	12.01	13.76	16.62	29.88	27.51	32.05	37.84	43.69	68.58	75.30	82.867	90.437	98.006
Petroleum	51.92	56.48	61.96	68.47	78.68	85.66	453.85	124.97	176.40	224.87	242.09	262.907	283.722	304.538
Pharm. & ani. feeds	8.85	9.97	11.30	14.62	18.40	19.33	28.13	37.04	40.38	47.48	53.90	59.283	64.667	70.051
Publishing	11.96	9.30	9.42	11.53	12.80	15.48	16.03	17.65	20.19	24.22	28.25	28.300	28.346	28.393
Textiles	9.82	12.29	15.89	21.18	38.54	53.80	122.01	139.19	151.27	153.12	168.62	200.196	231.768	263.340
Second-tier mkt.	5.72	5.73	5.45	4.50	4.89	4.63	6.59	8.49	10.24	10.27	11.02	10.835	10.655	10.475
Yearly average	23.865	26.980	27.957	31.471	39.075	47.019	87.852	82.199	100.468	118.774	148.733	162.256	175.862	189.566

Source: Computed from annual reports and statements of accounts of 105 selected quoted companies in Nigeria (various issues).
Note: Equity = share capital + share premium + reserves

Appendix B: Structure of debt of selected quoted companies in Nigeria, 1983–1996 (Annual average in N million)

NSE classifications	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Automobile & tyre	31.53	34.68	38.17	41.80	22.17	33.57	91.56	40.04	131.11	138.49	231.42	219.852	208.859	198.418
Breweries	7.78	6.91	4.19	6.52	6.26	10.21	20.75	19.35	22.20	26.14	28.66	27.230	25.868	24.575
Building materials	23.83	21.14	15.96	16.62	41.34	21.46	29.65	46.06	23.81	76.73	55.69	52.903	50.258	47.745
Chemical & paints	4.83	5.87	5.16	5.07	3.94	2.76	2.84	6.72	6.77	6.77	12.08	11.473	10.899	10.355
Commercial	9.09	12.17	17.12	22.58	8.88	8.88	10.75	10.38	10.31	19.23	24.69	23.453	22.280	21.166
Computer & equip.	4.10	3.60	3.10	1.49	1.04	1.75	5.22	0.84	1.08	7.01	14.60	13.874	13.180	12.521
Conglomerates	26.75	26.82	26.64	23.44	30.77	22.82	56.43	128.83	142.17	80.84	88.60	84.167	79.959	75.961
Construction	0.82	0.82	0.82	0.89	2.81	2.84	37.92	38.08	40.43	52.17	53.80	51.105	48.550	46.122
Engineering tech.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000
Food & tobacco	10.35	6.76	8.84	4.26	7.17	10.62	14.62	13.64	27.03	47.71	33.21	31.550	29.973	28.474
Footwear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000
Ind. & domes. prod.	4.04	2.73	1.87	7.69	17.75	18.23	17.18	16.32	21.50	24.40	51.44	48.868	46.425	44.103
Machinery	2.23	1.63	11.62	6.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	0.000	0.000
Packaging	0.00	30.42	30.87	30.42	12.38	9.05	9.07	9.01	9.01	9.00	10.21	9.702	9.217	8.756
Petroleum	0.84	4.23	3.87	4.78	5.34	3.97	5.93	0.00	0.00	16.38	27.10	25.749	24.461	23.238
Pharm. & ani. feeds	2.19	2.15	2.23	1.81	3.29	12.41	4.01	4.01	8.11	11.04	8.03	7.625	7.244	6.882
Publishing	27.67	26.16	25.72	29.16	13.16	11.15	10.35	10.36	10.14	3.42	6.84	6.498	6.173	5.864
Textiles	6.82	4.83	4.06	3.83	16.97	22.69	42.25	57.29	59.44	104.89	119.77	113.779	108.090	102.686
Second-tier mkt.	0.00	0.84	2.26	3.05	4.17	3.85	3.67	5.64	4.28	4.28	3.98	3.778	3.589	3.409
Yearly average	8.572	10.093	10.659	11.025	10.391	10.329	19.064	21.399	27.230	33.080	40.532	38.506	36.580	34.751

Source: Computed from annual reports and statements of accounts of 105 selected quoted companies in Nigeria (various issues).
Note: Debt = Long-term debt + debenture

**Appendix C: Index of investment of selected quoted companies, 1983 -1996
(1987 = 100)**

NSE classifications	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Automobile & tyre	89.96	87.62	93.72	97.35	100.00	101.88	106.77	162.00	163.00	240.83	289.05	306.72	324.38	342.04
Breweries	42.88	67.78	67.78	67.78	100.00	58.67	35.97	77.23	58.10	73.21	97.99	101.70	105.41	109.12
Building materials	39.93	39.93	20.95	28.20	100.00	132.28	173.41	84.16	120.49	261.67	434.13	448.74	463.35	477.97
Chemical & paints	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	101.86	103.72	105.59
Commercial	106.47	95.69	95.69	100.00	100.00	100.00	100.00	100.00	99.57	168.94	187.92	211.06	234.20	257.34
Computer & equip.	31.26	85.56	76.26	46.47	100.00	99.68	108.61	58.87	59.29	117.11	118.51	137.35	156.19	175.03
Conglomerates	35.06	36.06	24.03	30.53	100.00	126.81	178.52	154.91	123.27	267.54	526.66	528.96	531.27	533.58
Construction	103.23	100.00	100.00	100.00	100.00	251.94	251.94	251.94	290.00	288.39	288.39	547.92	807.46	1067.00
Engineering tech.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Food & tobacco	166.28	123.35	41.33	22.92	100.00	19.16	106.12	166.20	226.13	169.03	198.49	205.82	213.16	220.50
Footwear	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	844.97	1589.94	2334.91
Ind. & domes. prod.	16.68	16.68	16.68	88.38	100.00	53.00	53.00	16.68	214.77	95.00	121.68	139.94	158.19	176.45
Machinery	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Packaging	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	153.64	207.28	260.91
Petroleum	52.71	60.47	65.12	86.82	100.00	143.41	296.90	605.04	472.87	451.16	1108.53	1316.43	1524.32	1732.22
Pharm. & ani. feeds	52.63	52.63	157.89	157.89	100.00	157.89	42.11	110.53	2210.53	7789.47	7789.47	10612.52	13435.56	16258.60
Publishing	100.00	100.00	100.00	100.00	100.00	100.00	100.00	133.44	131.48	160.66	179.34	267.28	355.21	443.14
Textiles	145.95	145.95	145.95	145.95	100.00	127.03	637.24	732.81	1162.97	1164.32	1169.73	1198.72	1227.72	1256.71
Second-tier mkt.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yearly average	67.53	69.04	68.70	72.23	84.21	93.25	131.08	155.46	296.45	607.75	674.20	901.24	1128.28	1355.32

Source: Computed from Table 4.

- Notes: 1. Interest rates were liberalized in 1987.
2. There were investments in 16 sectors only from 1983 to 1996.

**Appendix D: Index of real turnover of selected quoted companies in Nigeria, 1983 – 1996
(1987 = 100)**

NSE classifications	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Automobile & tyre	322.81	160.03	142.81	127.35	100.00	109.32	102.95	134.37	173.10	133.50	106.90	75.14	43.37	11.61
Breweries	184.67	126.16	84.69	83.11	100.00	95.62	96.76	130.33	158.71	239.46	90.00	87.95	65.55	43.15
Building materials	68.45	51.55	56.35	73.74	100.00	82.02	80.33	111.27	137.98	172.55	108.37	78.50	48.63	18.76
Chemical & paints	123.90	91.16	75.63	68.61	100.00	96.46	90.15	97.39	120.45	91.08	225.02	230.61	236.19	241.77
Commercial	46.08	34.91	140.41	113.31	100.00	88.69	90.49	106.98	168.04	173.32	828.97	1011.94	1194.91	1377.88
Computer & equip.	176.40	43.20	85.75	90.82	100.00	86.83	83.73	96.30	87.27	112.27	606.89	716.34	825.79	935.24
Conglomerates	117.16	85.86	90.93	83.27	100.00	87.57	88.88	82.19	105.45	99.47	33.51	36.86	40.54	44.60
Construction	123.47	59.28	41.79	73.47	100.00	105.03	116.59	174.43	259.54	268.43	154.06	143.53	133.00	122.47
Engineering tech.	0.00	0.00	0.00	0.00	100.00	236.24	122.93	253.45	335.12	347.70	2542.22	3444.85	4347.48	5250.10
Food & tobacco	179.73	125.16	106.89	108.05	100.00	87.30	86.34	111.62	145.17	177.02	131.29	114.34	97.39	80.44
Footwear	134.81	108.44	116.78	114.18	100.00	86.78	79.86	84.58	99.64	162.44	376.45	418.98	461.51	504.04
Ind. & domes. prod.	154.06	86.31	73.17	89.51	100.00	88.06	79.47	100.34	118.74	141.74	445.15	506.42	567.70	628.97
Machinery	144.10	79.37	157.97	118.00	100.00	83.85	76.21	133.48	205.38	142.06	1002.78	1247.94	1493.10	1738.26
Packaging	64.28	31.92	33.48	36.95	100.00	90.05	88.36	102.78	117.62	110.19	418.26	472.06	525.86	579.66
Petroleum	94.51	66.86	67.29	106.17	100.00	79.13	71.31	78.95	92.41	65.09	27.88	32.07	36.88	42.41
Pharm. & ani. feeds	91.92	69.83	69.38	72.94	100.00	81.21	67.00	87.59	111.09	125.30	304.41	328.59	352.78	376.96
Publishing	17.95	10.83	10.53	12.92	100.00	8.59	6.42	8.03	9.06	2.96	40.28	46.72	54.20	62.87
Textiles	77.19	65.92	70.13	76.19	100.00	98.27	104.51	125.67	171.33	122.90	111.10	83.96	56.82	29.68
Second-tier mkt.	79.02	315.61	244.35	248.11	100.00	88.10	85.87	113.66	490.74	342.39	2498.36	3380.39	4262.42	5144.44
Yearly average	115.82	84.86	87.81	89.30	100.00	93.64	85.17	112.29	163.52	159.47	529.05	655.64	781.27	907.02

Source: Computed from Table 5.

Note: Interest rates were liberalized in 1987.

Appendix E: Index of real profit before taxation of selected quoted companies in Nigeria, 1983 – 1996
(1987 = 100)

NSE classifications	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Automobile & tyre	39.55	90.05	118.74	112.05	100.00	107.77	129.21	140.60	142.65	167.96	291.10	332.53	373.96	415.39
Breweries	283.73	208.47	148.92	126.33	100.00	114.09	123.53	139.17	175.65	185.26	299.27	232.40	165.53	98.66
Building materials	71.54	71.40	73.54	76.06	100.00	97.88	124.45	167.00	206.37	232.25	169.99	174.17	178.35	182.53
Chemical & paints	86.17	85.44	96.24	67.86	100.00	74.88	82.86	77.37	71.89	61.25	65.05	78.06	93.68	112.41
Commercial	111.14	0.00	106.09	148.88	100.00	119.63	97.80	93.01	137.15	196.80	200.63	197.28	193.94	190.59
Computer & equip.	0.00	0.00	80.50	70.35	100.00	59.65	60.72	53.94	30.65	63.21	58.21	69.85	83.82	100.59
Conglomerates	68.31	71.10	98.03	101.78	100.00	74.97	99.35	62.90	100.83	62.70	95.82	89.12	82.42	75.71
Construction	144.03	70.11	106.98	51.89	100.00	97.94	112.12	149.14	201.65	210.53	319.28	324.10	328.92	333.74
Engineering tech.	0.00	0.00	0.00	0.00	100.00	118.09	36.23	52.48	33.83	17.03	9.79	11.75	14.10	16.92
Food & tobacco	132.35	98.76	114.69	102.79	100.00	69.49	67.80	84.41	109.86	122.42	115.78	138.93	166.72	200.06
Foot wear	161.69	188.47	242.27	249.88	100.00	96.21	37.69	43.17	2.83	285.38	30.37	36.45	43.74	52.48
Ind. & domes. prod.	91.88	69.99	54.76	87.09	100.00	76.55	97.81	170.35	199.68	191.32	189.75	190.67	191.59	192.51
Machinery	0.00	0.00	48.62	0.81	100.00	201.62	119.59	123.29	306.16	211.77	169.19	203.02	243.63	292.35
Packaging	0.00	0.00	45.01	0.00	100.00	206.47	264.39	250.43	334.44	387.26	273.06	327.67	393.20	471.84
Petroleum	125.42	89.01	97.21	76.63	100.00	69.92	75.08	70.93	93.07	97.31	119.06	142.87	171.44	205.73
Pharm. & ani. feeds	62.87	81.49	105.06	87.28	100.00	65.87	122.12	28.85	94.23	85.93	130.15	130.83	131.51	132.19
Publishing	237.96	0.00	41.91	324.26	100.00	92.42	72.24	134.35	230.00	90.47	94.45	113.34	136.00	163.20
Textiles	0.00	47.40	74.13	96.95	100.00	88.07	76.04	59.27	59.18	85.01	90.54	108.65	130.38	156.45
Second-tier mkt.	28.25	31.42	280.68	154.85	100.00	76.49	65.14	84.31	128.63	27.01	159.57	178.43	197.29	216.15
Yearly average	0.00	0.00	101.76	97.05	100.00	100.42	98.11	104.47	139.93	146.36	151.63	162.11	174.75	189.97

Source: Computed from Table 6.

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