MODELLING THE DIVIDEND BEHAVIOURAL PATTERN OF CORPORATE FIRMS IN NIGERIA

BY

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**A DISSERTATION SUBMITTED TO THE POST GRADUATE SCHOOL,
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DECLARATION

I hereby declare that this dissertation titled, "Modelling the Dividend behavioural Pattern of Corporate Firms in Nigeria," is a product of my research work. To the best of my knowledge and belief, this work has never been submitted to any institution for an award of a degree or certificate of whatever kind. All borrowed materials are duly and properly acknowledged. 1 take the sole responsibility for any errors contained therein.

Fodio I. M.

CERTIFICATION

This dissertation entitled, "Modelling the Dividend behavioural Pattern of Corporate Firms in Nigeria," by Musa Inuwa Fodio meets the regulations governing the award of the degree of Doctor of Philosophy in Accounting and Finance of Ahmadu Bello University, and is approved for its contribution to knowledge and literary presentation

PROF .....

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31/1/06

Sign

Date

Dean, Postgraduate School

DEDICATION

This research work is dedicated to my children: Nusaibah, Jabir and Juwairiyya for the fatherly care they missed during the period of the research.

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ABSTRACT

This study uses the confirmatory specification approach to develop a parsimonious multiple regression model for the purpose of explaining and predicting the dividend behaviour of a cross-section of 53 firms in Nigeria for the period 1993 to 2002. The model employs current earnings, previous dividends, cash flow, investment and net current assets as explanatory variables and growth, firm size and industry classification as nonmetric variables in order to explain and predict two dividend policy factors- dividend payment and dividend changes.

In particular, the study uses the five explanatory and three dummy variables in order to determine their effect on a firms decision to pay or vary dividend. The study hypothesises a significant relationship between the five predictor and three dummy variables and the two dividend policy factors.

The study reveals that the five explanatory variables have significant aggregate impact on the two dividend policy factors. This result provides evidence on the utility of the model in explaining and predicting the dividend behaviour of corporate firms in Nigeria.

The study also establishes a significant positive relationship between current earnings as well as cash flow and the two dividend policy factors. However, the results reveal that previous dividend is only positively related to dividend payment. The relationship between previous dividend and

dividend changes is found to be negative and significant at 1 percent. Similarly, investment is found to be negatively related to dividend payment but not significantly related to dividend changes. In both the dividend payment and dividend change model, the net current assets variable is not found to be significant.

The tests find growth to play a significant role in dividend policy. Firm size however does not play any significant role. In addition, the tests find only modest support for industry related dividend policy effect.

The short-term characteristics of most of the variables in the study imply that they can be manipulated to suit the interest of the major stakeholders of a firm. The findings of the study clearly demonstrate the utility of the model in explaining and predicting dividend payment as well as dividend changes by existing and potential shareholders of corporate firms. The findings also demonstrate the utility of the model in monitoring compliance with the insolvency rule and the possibility of formulating and enforcing accounting standard on dividend.

On the basis of the findings and policy implications of the study it has been recommended that board of directors of corporate firms in Nigeria should utilize the variables used in this study for the purpose of establishing dividend policy that will attract the clientele of investors that exist in Nigeria. The study also recommends the use of the model developed in this study for the purpose of explaining and predicting dividend payment and

dividend changes by shareholders and in monitoring compliance with insolvency rule by firms' creditors. Furthermore, the study recommends that government should reduce capital gains tax in order to encourage both growth and matured firms to retain some portion of their earnings for the purpose of financing their investment opportunities. On the part of the accounting professional bodies in Nigeria, the study recommends that they should as a matter of necessity initiate the process of setting up a standard on dividend.

Finally, the present study recognises the possibility of omitting potential dividend policy explanatory variables such as operating and financial leverage, nature and number of shareholders and distributable earnings. It therefore calls for caution in the extrapolation of the findings of the study and encourages further research on the factors that determine dividend behaviour of corporate firms in Nigeria.

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Acronyms and Abbreviations

DYD		Dividend yield, representing dividend payment
aO, PO		Intercept term
Eit		current earnings
DlVi(t-l)	=	Preceding year dividend
CF		Cash flow
INV		Investment
NCA		Net current assets
CD		Dividend change
Dl		Dummy 1, representing Growth
D2		Dummy 2, representing firm size
D3		Dummy 3, representing industry classification
eit		error term

CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

A fundamental decision which corporate firms often have to make is the determination of the proportion of earnings to retain and the proportion to distribute to shareholders. This concern has prompted many studies on dividend policy focusing on such areas as the relevance or irrelevance of dividend policy to the value of a firm and the determinants of dividend yield and dividend payout rate. Despite extensive debate and research, the actual motivation for paying dividends remains a puzzle (Black, 1976:5).

In recent times, three opposing theoretical views have emerged on dividend policy. The first is the view of the rightists advocated by Gordon (1962:99) and Walter (1963:280). The rightists posit that a policy of paying out more cash dividends, all things being equal, will tend to increase the share price of a firm since rational investors are risk-averse and will prefer current dividends to future dividends. The second view is that of the leftists supported by Litzenberger and Ramaswamy, (1979:163 and 1982:429). The Leftists position is that a high dividend payout is bad since it tends to reduce the share price of a firm since dividend is often taxed more heavily than capital gains. In-between the two extremes lies the middle-of-the-road party represented by Miller and Modigliani (1961). The middle of the roaders

maintain that the share price of a firm is not affected by its dividend payout policy. This is because as long as investment and borrowing policy are held constant, a firm's overall cash flows are the same regardless of payment policy. This is particularly true in a world without taxes, transaction costs and other market imperfections. These three schools of thought offer contradictory advice to corporate firms. The rightists urge firms to pay high dividend because it increases the wealth of the shareholders. The leftists advise firms to pay low dividend since dividend are often taxed more heavily than capital gains. The middle of the roaders encourage firms to vary dividend payment since it does not matter whether dividend is paid or not.

In practice, retained earnings are usually considered as the most significant source of long-term fund required to finance a firm's long-term growth. However, a firm is made up of a coalition of members with conflicting interests. Three members of the coalition are considered as the most prominent in a firm's dividend decision. These are the firm (itself), the owners (shareholders) and creditors (bondholders and others). This implies that a firm's decision to retain a large proportion of its earnings will adversely affect the two other coalition members. A high retention ratio will result in low payout ratio, which implies less current dividends. This is because 100 percent earnings (E) minus payout ratio (DIV) equals retention ratio (b). That is, E - DIV = b. Therefore E - b = DIV. If b is high, DIV will be low and vice-versa. A high retention ratio will also imply lower net

cash flow because of the relationship between dividend payment and cash flow. A lower net cash flow reduces a firm's solvency, that is, its ability to pay its debts as and when due. Thus a firm must strike a proper balance between these conflicting interests.

The seminal study on dividend behaviour carried out by Lintner (1956:79) reveals that every firm, in practice, follows a particular dividend policy. The study further shows that firms consider the proportion of earnings to be paid out without recourse to their investment requirements. In other words, investment requirement is not a factor for modelling the dividend behaviour of firms. Hence firms generally have a long-run dividend payout ratio, which is usually smoothened in the process of determining dividend changes that follow shifts in long-run sustainable earnings.

Oyejide (1976:179) uses a modified Lintner - Brittain model adopted by Charitou and Vafeas (1998:713) to demonstrate the applicability of Lintner's model to corporate firms in Nigeria. The study reveals that the Lintner type conventional models perform remarkably well in explaining the dividend behaviour of quoted firms in Nigeria.

A survey carried out by Ramesh and Pandey (1994:751) shows that the typical policy of most firms in practice is to retain between one-third and half of the earnings and distribute the remaining amount to shareholders.

The Board of Directors (BODs) in this regard has a large degree of flexibility to decide on the proportion of earnings to pay as dividend.

The decision is by no means an easy one largely because of the alternative approaches to the establishment of dividend policy in practice. One of the important approaches used in establishing a dividend policy is the residual dividend approach. Under this approach, firms generally avoid new equity sales and rely heavily on internally generated cash flow to finance profitable projects. Dividend is paid only from the left over of cash after satisfying investment requirements. With this policy, the firm's objective as Ross *et al* (1996:382) indicate is to maintain its investment needs and its desired debt/equity ratio before paying dividend. Given this objective, the expectation is that firms will pay a high percentage of their earnings as dividend when investment opportunities are few and vice-versa. This approach is employed by both growing and matured firms. The major disadvantage of the residual dividend approach is that it leads to unstable dividend payout, which may create lack of confidence in the minds of shareholders. In order to avoid this, a firm may choose between at least two types of dividend policies. First, each quarter's dividend can be a fixed fraction of that quarter's earnings. The effect of this is that dividend will vary throughout the year. This is called a cyclical dividend policy. Second, each quarter's dividend can be a fixed fraction of yearly earnings, implying that all dividend payments would be equal. This is a stable dividend policy.

According to Ramesh and Pandey (1994:751) most financial managers agree that a stable policy is in the best interest of the firm and its shareholders since it enables them to predict dividend payment. Dividend cuts in particular are viewed as highly undesirable because such cuts are often interpreted as a sign of financial distress. Consequently, most companies in practice will try to maintain a steady dividend through time, increasing the dividend only when management is confident that the new dividend can be sustained in the long run.

As preceding discussions indicate dividend policy has been the subject of considerable research in the developed economies. The importance of dividend as one of the determinants of a country's economic performance has for long been recognised by developing economies (Oyejide, 1976:179). However, only few studies have been carried out on dividend policy in the developing nations.

In Nigeria, early studies on dividend policy attempted to highlight the pattern of dividend policy pursued by Nigerian firms during the period of indigenisation. (Uzoaga and Alozienwa, 1974:461; Inanga, 1975:133; and Soyode, 1975:136). These studies fell short of utilizing the conventional dividend models in their investigation. Subsequent studies such as Oyejide (1976:179), Izedonmi and Eriki, (1996:15) and Adelegan, (2000:5 and 2003:35) have tested the application of Lintner's model and the modified Lintner - Brittain model as adopted by Charitou and Vafeas (1998:225), in

an attempt to explain the dividend policy of Nigerian firms at different periods. Most of these studies however, recognised the dynamic nature of the Nigerian economy and the need for further research in order to validate the conclusion that emanated from the studies.

This study develops an empirical model that is expected to provide useful explanation on the dividend behavioural pattern of corporate firms in Nigeria based on the five explanatory variables identified from prior studies and legal consideration. The study also examines the effect of growth, firm size and industry classification on the dividend policy of firms in Nigeria.

1.1 Statement of the Problem

Uptill this present moment, there is no accounting standard, to the best of our knowledge, at both local and international level that provides clear guidance on how the earnings of a firm should be distributed pro-rata between retention and payout. Although finance literatures tend to address the issue, all discussions on dividends in the literature are plagued by the "two-handed lawyer" problem. A two-handed lawyer is the one who says, "on the one hand I recommend you do so and so because of the following reasons, but on the other hand I recommend that you don't do it because of these other reasons" (Ross *et al*, 1996:381).

In essence, the subject matter of dividend policy has been a controversial one and will remain so unless professional accounting bodies

in collaboration with the government are prepared to solve the problem or at least reduce it to the barest minimum.

At present, legal rules in most countries have granted more latitude to the directors of companies to take dividend decisions subject to some constraints. In Nigeria for example, Section 379 (1) and (2) of the Companies and Allied Matters Act (CAMA) 1990, as amended, states that "a company may, in general meeting, declare dividends in respect of any year or other period only on the recommendation of the directors". Such company "may from time to time pay to the members such interim dividend *as appear to the directors* to be justified by the profits of the company. Section 381 (1) further states that "the directors may, before recommending any dividend, set aside out of the profits of the company such sums *as they think proper* as a reserve or reserves which shall, *at the discretion of the directors*, be applicable for any purpose to which the profits of the company may be properly applied, and pending such application may, *at the like discretion*, either be employed in the business of the company or be re-invested in such investments (other than shares of the company) *as the directors may from time to time think fit;* and the directors may also without placing the same to reserve, carry forward any profits *which they may think prudent* not to distribute". (Phrases italicised are for the purpose of emphasis).

The sections cited above suggest that dividend decisions in Nigeria usually rest squarely upon the shoulders of the Board of Directors of companies. This, however, does not imply that the directors' discretion is limitless. There are of course constraints that limit the directors' discretion. Some of these constraints are imposed by legal rules while others are imposed by financial factors. In Nigeria for instance, Section 380 of CAMA indicates that a company can only pay dividends, subject to its being able to pay its debts as they fall due, from profits arising from the use of the company's property, revenue reserves, and realised profit on fixed assets sold.

Section 381 further emphasised that "a company shall not declare or pay dividend if there are reasonable grounds for believing that the company is or would be after the payment unable to pay its liabilities as they become due."

The provisions above imply that dividends must be paid from earnings; either from the current year's earnings or from past years' earnings. This interpretation accords substantially with Epstein and Mirza (2003:664) interpretation of International Accounting Standards (IAS) 1 and 8, which deal with the presentation and disclosure requirements relating to stockholders' equity.

The provisions also emphasise what Weston and Brigham (1985:540) refer to as "the insolvency rule". This rule provides that corporations cannot

pay dividends while insolvent. Insolvency refers to a situation in which current liabilities exceed current assets; to pay dividends under such conditions would mean giving shareholders funds that rightfully belong to the creditors. This also agrees with the interpretation of IAS 1 and 8, which states that "corporations can now, in certain jurisdictions, declare and pay dividends ... if the directors conclude that, after the payment of such dividends, the fair value of the corporation's net current assets will still be a positive amount (Epstein and Mirza, 2003:664). Thus legal rules provide significant framework within which dividend policies should be formulated.

A firm's liquidity position is considered as one of the most significant financial constraints to dividend payment. According to Ross *et al* (1996:392) dividend generally involves the payment of cash out of earnings. The payment of dividends therefore, means cash outflow. Since retained earnings are generally invested in operating assets such as plant and equipment, inventories and other assets and not held in cash, it is possible for a firm with a long history of profitable operations and large retained earnings to declare dividend without having sufficient cash to pay the dividend. The ability of a firm to pay dividend largely depends on its level of maturity. A matured firm is generally (but not necessarily) liquid and able to pay large amount of dividends. A growing company, on the other hand, may face the problem of liquidity. Thus even when it makes good profits and has sufficient cash, it needs such funds for the purpose of

meeting up its permanent working capital requirements and satisfying its expansion programmes.

Another important financial factor that influences dividend policy is stability of earnings. Firms are usually reluctant to cut dividends. Most companies in practice would want to maintain a stable or regular dividend payout. This is in line with the outcome of the study carried out by Lintner (1956:79). Several studies in different countries have confirmed Lintner's findings. The prominent among these are Fama and Babiak (1968:1132) in the United States; Simons (1994:577) and Charitou and Vafeas (1998:713) in the United Kingdom; Rao and Sarma (1971:15) and Dhameja (1976:34) in India; and Oyejide (1976:179) Izedonmi and Eriki (1996:15), and Adelegan (2003:35) in Nigeria.

The major implication of these studies is that a firm with stable earnings is more likely to pay out higher percentage of its earnings while a firm with unstable earnings is likely to retain a high proportion of current earnings and hence pay a lower current dividend. Shareholders generally favour stability or regularity of dividends (Lintner, 1956:79). They therefore value stable dividends higher than the fluctuating ones, and may pay a higher price for shares of companies with stable dividend.

An important factor which firms must also consider in making dividend decision is their investment opportunities. Firms, especially in developing nations rely on retained earnings for the purpose of financing

their activities. As Cornell and Shapiro (1987:5) suggest, a firm's dividend policy could be impacted by the interaction between investment and financing decisions. A lower dividend means that cash is retained for internal use, rather than for dividends because firms prefer cheaper internal financing to external financing.

The other financial factors that have influence on dividend policy as Pandey (1999:744) indicate are financial capability and borrowing capacity of a firm, the corporation's accessibility to the capital market, and restrictions on dividend payments placed by lenders in a firm's loan agreements.

The general expectation is that in practice, both financial factors and legal rules would constitute the framework for the formulation of corporate dividend policies. However, all the previous studies on dividend behaviour have focused only on the influence of some of the financial factors on a firm's dividend decision. Lintner (1956:79) seminal study on dividend behaviour modelled the dividend change decision of firms using current earnings and previous dividends. Simons (1994:577) and Adelegan (2003:35) factored in cash flow variable in a dividend-change model, which uses current profits and previous year's dividend as potential explanatory variables. None of these prior studies has dealt with the influence of legal rules on a firm's dividend decision. In addition, none of the prior studies

has examined the combined effects of financial factors and legal rules on the dividend behavioural pattern of corporate firms.

The problem of this study therefore is to develop an empirical model that will capture the most potential explanatory variables, which impact individually and collectively on the dividend behaviour of corporate firms in Nigeria. These variables as preceding discussions indicate are current earnings, previous dividends, cash flow, investment and net current assets. The study also seeks to examine the effect of growth, firm size and industry classification on the dividend behaviour of Nigerian firms.

1.2 Research Questions

This study shall address the following fundamental questions:

1. What is the separate and combined effect of current earnings, previous dividends, cash flow, investment and net current assets on the dividend behaviour of corporate firms in Nigeria?
2. Which factor amongst the five variables has the most significant impact on the dividend behavioural pattern of corporate firms in Nigeria and what is the sequential significance of the five variables?
3. To what extent can the dividend behaviour of corporate firms in Nigeria be predicted using the five variables?

4 To what extent can the empirical model developed in this study be used to explain the dividend policy pattern of corporate firms in Nigeria?

5 What are the effects of growth, firm size and industry classification on the dividend behaviour of corporate firms in Nigeria?

1.3 Assumptions

The empirical model developed and tested in this study is predicated on the following assumptions:

1 Corporate firms strive to maintain long-run target dividend payout ratios. Thus dividends are smoothened to follow shifts in long-run sustainable earnings.

2 Each of the variables used in this study is a significant explanatory variable in the dividend policy model. This implies that there is complete absence of multicolinearity among the variables.

3 The homogeneity of dividend policy equation across firms is first assumed. This assumption was eventually relaxed to take cognisance of cross-firm variation in certain contextual factors such as firm growth, firm size and industry classification. However, homogeneity will be assumed to exist amongst firms

of the same size, at the same level of growth and in the same industry.

1.4 Research Hypotheses

The hypotheses of this study in the null form are as follows:

1 Current earnings, previous dividends, cash flow, investment and net current assets do not have significant aggregate impact on the dividend policy of corporate firms in Nigeria.

2 There is no significant relationship between current earnings and dividend policy of Nigerian corporate firms.

3 There is no significant relationship between previous dividend and dividend policy of firms in Nigeria.

4 There is no significant relationship between cash flow and dividend policy of firms in Nigeria.

5 There is no significant relationship between investment and dividend policy of firms in Nigeria.

6 There is no significant relationship between net current assets and dividend policy of firms in Nigeria.

7 Level of growth, firm size and industry classification do not have significant effect on the dividend policy of corporate firms in Nigeria.

1.5 Objectives of the Study

This study is designed to achieve the following objectives:

1. To develop an empirical model which incorporates five independent variables (current profits, previous dividends, cash flow, investment and net current assets) in determining the dividend behaviour of corporate firms in Nigeria.
2. To determine the aggregate impact of the five variables on the dividend behavioural pattern of corporate firms in Nigeria.
3. To identify the explanatory variable with the most significant impact on the dividend behaviour of firms in Nigeria, and consequently, the sequential importance of the five predictor variables.
4. To investigate the effect of growth, firm size and industry classification on the dividend policy of corporate firms in Nigeria.
5. To examine the value of using the five variables in explaining and predicting the dividend behaviour of corporate firms in Nigeria.
6. To use the findings of the study as a basis for making a case for the formulation of accounting standard on dividend.

1.6 Significance of the Study

To date, the theories on dividend policy in the finance literature have remained controversial. These controversies do not seem likely to be resolved in the nearest future. jr.;

The major defects of these theories as Brealey and Myers (1996:438) indicate are that they are too incomplete, and the premise upon which they are built is too sensitive to minor changes in specification to warrant any dogmatism.

What is obvious however is that firms in practice adopt particular dividend policies. The convention in Nigeria and other parts of the world is to grant substantial latitude to the Board of Directors to make dividend decisions subject to some legal and financial constraints. Consequently, divergent practices exist in the area of corporate dividend policy. The contributions of this study will therefore permeate the theoretical and practical dimensions of dividend policy.

In the theoretical arena, this study echoes the view of the rightists school of thought. This is due to the overwhelming evidence that demonstrate the importance of dividend to shareholders and the reaction of stock prices to dividend announcements (surveys in this area include: Gordon, 1959:99; Brennan, 1971:1115; Lintner, 1962:97; Ross, 1977:23; Litzenberger and Ramaswamy, 1982:429; Miller and Rock, 1985:1031; Ofer and Thakor, 1987:365; Simons, 1994:577; and Mainoma, 2001:18). However, contrary to the rightists' advocacy, this study tends to incline to the position of Brealey and Myers (1996:38) which stress that a firm should always smoothing dividends by choosing a target payout that is sufficiently low as to minimise its reliance on external equity and making relatively slow

adjustments toward it. It is therefore believed that the outcome of this study will expand the frontiers of knowledge on dividend policy.

This study is essentially a unique effort aimed at determining empirically the aggregate impact of current profit, previous dividend, cash flow, investment and net current assets on the dividend behaviour of corporate firms in Nigeria.

The practical contributions of this study are thus manifold. First, the accounting professional bodies will find the outcome of this study useful in the development of a standard on dividend. A standard on dividend is essential not only to provide clear guide to corporate bodies in formulating dividend policies but also required to narrow the divergent practices that presently exist in the area of dividend policy. This will go a long way in promoting uniformity and comparability of financial statements.

Second, the Board of Directors (BODs) of corporate firms will benefit tremendously from the outcome of this study. Even though the BOD's latitude in formulating dividend policy may be reduced or eliminated, where specific guidance exists, dividend policy formulation can then be based on clear cut guidance rather than relying on intuition, hunch, or untested rules of thumb.

Third, the firms' creditors need some protection against excessive dividend payments. In most instances, state laws provide such protection in principle via insolvency rule. In practice however it is difficult to assess

compliance with such rule by companies. This study provides a model that will help creditors to assess firms' compliance with the insolvency rule. Creditors can therefore have assurance that the firms will be able to pay their debts as and when due.

Fourth, there is a category of shareholders who favour a policy of regular cash dividend payments. This category includes small shareholders, retired and old persons, and some institutional investors. This category of shareholders may want to forecast their cash inflows. Cash flow forecast may be adversely affected by an intuitive dividend policy. The model in this study will help shareholders predict dividend payout of a firm in any particular year, thus making their cash flow forecasts realistic. In addition, potential shareholders whose interest is dividend income will find the model in this study useful. Such shareholders can use the model to predict a company's dividend payout in the long-run for the purpose of making investment decision.

Fifth, the financial and security analysts, and stockbrokers will find the model in this study useful for the purpose of predicting both the short and long run dividend payment potentials of a company. Clients can thus be given a well-informed advice on the company to invest based on their need for dividends.

Sixth, the government, which enacts laws on the payment of dividends, can use the model in this study to assess compliance with the

laws by corporate firms. The model has adequately captured the legal rules in Nigeria that relate to dividend payments as enshrined in the Companies and Allied Matters Act 1990 (as amended). It will therefore be a good basis for assessing compliance by corporate firms in Nigeria.

Lastly, future researchers may replicate this study using different sample and time horizon in order to validate the application of the model and findings of this study. It is therefore hoped that this research will stimulate further empirical studies on dividend behaviour in Nigeria.

1.7 Scope of the Study

This study examines the aggregate impact of five explanatory variables-current profits, previous dividends, cash flow, investment and net current assets-on the dividend behavioural pattern of corporate firms in Nigeria. The study also investigates the sequential importance of these variables and the value of utilising them in predicting the dividend behaviour of Nigerian firms. The study further examines the effect of growth, firm size and industry classification on the dividend policy of corporate firms in Nigeria. The five variables have been selected on the basis of empirical and legal considerations.

Several empirical studies have found a strong relationship between current profits, previous dividends and dividend policy. The most recent empirical works have demonstrated the incremental information content of

the cash flow variable when added to a dividend- change model that uses current profits and previous year's dividends as predictor variables. Investment has also been found to be highly correlated with dividend policy.

In Nigeria, section 380 of CAMA requires a company to consider its ability to pay its debts as they fall due. This implies that a company must consider the nature and timing of its cash flow. In addition, section 381 of CAMA prohibits a company in Nigeria from paying dividend if there are reasonable grounds to believe that the company is or would be insolvent after the payment of such dividend. Insolvency implies negativity of net current assets. In other words, the net current assets of a company must not be negative prior or subsequent to the payment of dividend. Therefore, only five variables are considered as critical in the development of a dividend policy model for corporate firms in Nigeria.

Empirical studies as well as the legal rules in Nigeria have remained silent on the other financial factors that influence dividend policy. These factors include a firm's financial capability and borrowing capacity, accessibility to capital market, and restrictions placed by lenders on dividend payments. Hence this study did not capture these factors in the formulation of a dividend policy model for corporate firms in Nigeria.

The theoretical issues considered in this study include: the concept of dividend policy, factors influencing dividend policy, how dividend policies are established, and the relevance or irrelevance of dividend policy to the

value of firms. These issues have direct bearing on the theme of this study. However, other theoretical issues which relate to dividend such as the information content of dividend and dividend payment or payment procedure are not considered in this study.

The study covers a period often years from 1993 to 2002. A ten-year period is considered appropriate in order to generate sufficient data for the study. Also, ten years is considered almost the average of the study period used by most of the prior researches on dividend behaviour. Simon (1994:577), for instance, used a period of five years from 1983 to 1987, while Adelegan (2003:35) used a period of fourteen years from 1984 to 1997. The period 1993 to 2002 is also appropriate because it considered as current, and data are available for the period at the time of carrying out this research. The current nature of the period has assisted in the confirmation of the findings of previous studies.

This study uses the Nigerian Stock Exchange (NSE) listing of companies to select its sample firms. As at 2003, there is a total of 186 companies listed on the NSE (see Appendix F). The firms have been selected on the basis of some criteria which include firm with positive earnings, record of dividend payment, positive cash flows, net current assets and record of capital spending throughout the study period. A total number of 53 firms have been selected since the model developed in this research is based on the multiple regression variate. In the design of multiple

regression analysis, the sample size and number of observation have direct impact on the appropriateness and the statistical power of multiple regression. Small samples, usually characterised as having fewer than 20 observations, are appropriate only for simple regression analysis. Likewise, very large samples of 1,000 observations or more make the statistical significance test overly sensitive, indicating that almost any relationship is statistically significant (Hair, *et al;* 1997:5). The sample size used in this study is neither too small to preclude the use of multiple regression nor too large to make the statistical significance test overly sensitive. Second, the importance of sample size is not only limited to determination of statistical power. Sample size also affects the generalisability of the results by the ratio of observations to independent variables. According to Hair, *et al* (1997:5) a general rule is that the ratio should never fall below five. The ratio of observations to independent variables used in this study satisfies this requirement. It is therefore believed that the findings of this study will warrant generalisation.

1.8 Limitations of the Study

The possible limitations of this study include the nature of sample and data, operationalisation of the variables, the assumption of homogeneity and modelling approach.

1.8.1 Nature of Sample

This study suffers from survivorship bias. The Sample of the study consists of only "healthy" firms (that is, firms with record of positive earnings and regular dividend payment for 10 years). "Unhealthy" firms (that is, firms with record of erratic earnings and/or dividend omission) were not included in the study. This is likely to limit the generalisation of the results of the study to healthy firms. The exclusion of "unhealthy" firms from the study sample has however been justified by the fact that relative performance evaluation is meaningless for firms with zero dividend payout record.

1.8.2 Nature of Data

The study has relied basically on accounting data contained in the firms' annual reports which have not been adjusted for inflation. To the extent that financial information are distorted in a period of inflation, the results of the study may not give an accurate representation of the dividend behaviour of corporate firms in Nigeria. As much as possible, this possible distortion has been minimised by the use of market value of shares as a deflator in the computation of all the variables.

1.8.3 Operationalisation of the Variables

There are differences amongst researchers on the operational definition of some of the variables used in the study. For instance, Adelegan (2003:35) defines dividend to include both ordinary and preference share dividend. Oyejide (1976:179) on the other hand defines dividend to include both cash and stock dividend. The present study defines dividend in terms of cash dividend paid to ordinary shareholders only. This is because some of the predictor variables such as cash flow are measures of a firm's liquidity. In addition, a firm's management can only exercise its discretion essentially on ordinary share dividend and not preference share dividend. The use of cash dividend paid to ordinary shareholders is therefore considered must appropriate in the present study. Similarly, researchers have differed concerning the definition of cash flow and investment. The operational definitions of these variables as used in this research work are thus peculiar to the study. The findings of the study must necessarily be interpreted within the context of the operational definition of the variables used in this study.

1.8.4 The Assumption of Homogeneity

The assumption of homogeneity across firms, implying constant response coefficient, was first used by the study. Even though the assumption was later relaxed to take cognizance of certain contextual factors such as growth, firm size and industrial classification, homogeneity was

assumed to exist among firms of the same size, growth level and industry. This calls for caution in the application of the models of the study to firms at individual level. This is because firms of the same size at the same level of growth and within the same industry may yet have peculiar features.

1.8.5 The Modelling Approach

The study has adopted the confirmatory specification approach for the purpose of fitting the regression model. This approach in comparison with the sequential search and combinatorial approach assumes that the analyst has total control over the variable selection. To the extent that several important variables may possibly be excluded from the variable selection process, the application of the confirmatory approach requires the awareness of this caveat

The limitations discussed above generally call for caution in the extrapolation of the findings of this study.

1.9 **Plan** of **the** Study

The remaining parts of this study have the following organisation. Chapter Two reviews and appraises theoretical, survey and empirical works on corporate dividend policy that are related to this study. Chapter Three discusses the methodology of the study. Chapter Four presents the empirical results generated from the secondary data collected for the purpose of this

study. Chapter Five provides the summary, conclusions, and recommendations of the study.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.0 Introduction

Dividend policy is one of the most controversial subjects in the finance literature. A considerable number of finance scholars have engaged in extensive theorizing to provide explanation as to why companies should pay or not pay dividends. Some researchers have developed and empirically tested various models to explain dividend behaviour in the developed markets. Other researchers have surveyed corporate managers and institutional investors' views about dividend policy. Despite the extensive debate, empirical researches and surveys, the reason for the payment of dividends by corporate firms has remained a puzzle.

The debate over the importance of dividend policy first appeared in Miller and Modigliani (MM) (1961:411) who concluded that given perfect capital markets, dividend decision does not affect firm value and is therefore irrelevant. Most financial practitioners and many academics greeted this conclusion with surprise because the conventional wisdom at the time suggested that a properly managed dividend policy had a significantly positive impact on share prices and shareholders' wealth.

Since the MM study, other researchers have relaxed the assumptions of perfect capital markets and offered theories on how dividends affect firm

value and how managers should make dividend policy decisions. This chapter provides an insight into this and similar issues. In particular, the chapter reviews theoretical, survey and empirical works on dividend policy. The chapter begins with a conceptualization of dividend policy in order to portray the nature of the controversies surrounding the subject matter of dividend policy. The chapter proceeds with a discussion on the relevance or irrelevance of dividend policy to the value of the firm. It scrutinizes the arguments of the three schools of thought: the rightists, the leftists and the middle-of-the-roaders. The chapter goes further to examine how corporate firms establish dividend policy in practice with particular emphasis on Lintner's (1956:77) seminal study on corporate dividend behaviour.

Finally, the chapter examines both theoretical as well as survey and empirical works on the determinants of corporate dividend policy. The sections that follow provide detailed discussion.

2.1 The Concept of Dividend Policy

The first step towards understanding dividend policy as Brealey and Myers (1996:415) indicate is to recognize the fact that the phrase "dividend policy" means different thing to different people. Therefore an appropriate starting point for a discussion on dividend policy is a conceptualization of the subject matter.

There are three major views in relation to dividend policy. These are (1) the view that relate dividend policy to a firm's financing and investment decisions; (2) the view that relate dividend policy to level of dividends; (3) the view that relate dividend policy to dividend stability. These viewpoints are discussed in tuni in the sub-sections that follow.

2.1.1 Dividend Policy in Relation to Financing and Investment Decisions

Dividend decision can be considered as a passive decision variable. Passive decision variable implies that, dividend is only to be paid out if a firm cannot make better use of its fund for the benefit of its shareholders. This implies that earnings are retained to the extent that they are required to finance a firm's optimal capital budget. Dividends are paid only if more earnings are available than are needed to support the capital budget. This is referred to as the "Residual theory of dividend" (Brealey and Myers, 1996:438). The problem with this theory as Block and Hirt (2000:535) and Mainoma (2001:18) indicate is that no consideration is given to shareholders feeling about dividend. The treatment of dividend policy as a passive residual determined by the availability of acceptable investment opportunities suggests that shareholders are indifferent to a firm's decision to pay dividend or retain earnings.

The residual theory also confuses a firm's dividend policy with its investment and financing policy. Miller and Modigliani (1961:421) criticized the theory that dividend policy affects the share price of a firm on the grounds that the proponents of the theory mixed up a firm's dividend decision with its financing and investment decisions. Where this occurs, it will be difficult to separate the impact of dividend policy from the impact of investment and financing policy. Brealey and Myers (1996:415) thus argue that a firm's dividend policy must always be isolated from other problems of financial management.

The precise question which should be addressed is: "what is the effect of a change in cash dividends paid, assuming a firm's investment and borrowing decisions are held constant. If a firm's investment outlays and borrowing are fixed, there is only one possible source, that is, the issue of stock. Hence dividend policy should be seen as a trade-off between retaining earnings on the one hand and paying out cash and issuing new shares on the other. The issue of the new shares may not necessarily be concurrent with payment of dividends. The view ignores the possibility of financing a firm's investment using retained earnings. It assumes that cash flow will always be less than or equal to investment opportunities and the firm will always lack the capacity to borrow because of the desire to keep a conservative debt ratio.

These arguments can easily be countered using the pecking order theory. The theory posits that firms prefer internal finance. They adapt their dividend payout ratios to their investment opportunities, while trying to avoid sudden changes in dividends. Where there is fluctuation in profitability and investment opportunities, the internally generated cash flows, could be greater than or less than capital expenditure. If it is more, the firm will pay off its debt or invest in short-term marketable securities. If it is less, the firm draws down its cash balance or sell off its short-term marketable securities. However, if the firm must resort to external financing it starts with debt, then possibly hybrid securities such as convertible bonds, and then equity as a last resort.

The pecking order theory assumes that debt ratios change when there is an imbalance of internal cash flow, net of dividends and real investment opportunities. Thus highly profitable firms with limited investment opportunities try to maintain a low debt ratio while firms whose investment opportunities outrun internally generated funds are driven to maintain a high debt ratio.

The implication of the preceding discussion is that it is unrealistic to assume that a firm's debt ratio and investment opportunities will remain constant. This therefore suggests that it will be difficult in real life, except for the purpose of theorizing, to separate a firm's dividend decision from its investment and financing decision.

2.1.2 Dividend Policy in Relation to a Firm's Level of Dividends

Most of the literature in finance view dividend policy as a decision confronting a firm's management with regards to the proportion of earnings to distribute as dividend and the proportion to retain for the purpose of expansion. Pandey (1999:744) observes that the important aspect of dividend policy is to determine the amount of earnings to be distributed to shareholders and the amount to be retained in the firm The importance of these two variables lies in the fact that while retained earnings are the most significant internal sources of financing the growth of a firm, dividends on the other hand are considered desirable from shareholder's point of view, as they tend to increase their current return. Brigham and Houston (1998:542) thus argue that when deciding on how much cash to distribute to shareholders, financial managers must keep in mind that the firm's objective is to maximize shareholders' value. Therefore, the proportion of earnings to be paid out as cash dividends (known as target payout ratio) should be based in large part on investor's preferences for dividends versus capital gains. This preference can be considered in terms of the constant growth stock valuation model:

$$\mathbf{A}\quad \mathbf{Po} = \frac{\mathbf{Pi}}{K_s - g}$$

Where: T_0 is intrinsic value of stock based on investor's optimism about a firm

Di is expected dividend yield during the coming year.

K_s is the minimum required rate of return on a common stock.

g is the expected rate of growth in dividends per share.

If a company increases its payout ratio, it raises Di. This increase in the numerator, all other variables remaining constant, would cause the stock price to rise. However, if Dj, is raised, then less cash will be available for re-investment, which may cause the expected growth rate to decline, and that would tend to lower the stock price. Thus, any change in payout policy will have two opposing effects. A firm must therefore strive for an optimal dividend policy by striking a balance between current dividends and future growth so as to maximize the stock price.

The problem with this viewpoint is that it assumes that dividend can only be paid in cash. While cash dividend is what matters to most investors, it is not the only form of dividend payment. A firm may elect to pay common stock dividends or declare a stock split. Brigham and Houston, (1998:566) Pandey (1999:789) and Mainoma (2001:22) argue that both stock split and stock dividend do not by themselves alter shareholders' wealth. Earnings per share and the market price of common stock decrease in proportion to the amount of shares distributed and each shareholder's proportion of ownership remains unchanged. However, several empirical studies have shown that stock splits or stock dividend can have informational content in tl^short-run especially where a firm's earnings per

share are growing rapidly and the stock split or dividend announcement is followed by an eventual increase in earnings and dividends. This is because investors take stock splits/dividends as signals of higher future earnings and cash dividends (See Baker, 1958:115; Fama *et al*, 1969:3; and Grinblatt *et al*, 1984:461).

Another problem associated with the viewpoint is that it assumes that retain earnings is the only source of financing business growth. Empirical studies carried out in India by Chakraborty (1977:5) and Pandey (1985:21) revealed that firms finance a significant proportion of their assets using external debt, including current liabilities. Companies were found to employ trade credit as much as bank borrowings.

Thus while the viewpoint that dividend policy relates to the determination of dividend payout is applausable for theoretical purposes, its practical relevance and application are limited.

2.1.3 Dividend Policy in Relation to Dividend Stability

The term dividend in a general sense refers to cash paid out of current or accumulated profit. The term "distribution" is used for payment made by a firm to its owners from sources other than current or accumulated earnings (Ross *et al*, 1996:381). Dividend payment therefore involves cash outflow. Profits and cash flows vary overtime as is the case with investment opportunities. This could probably suggest that firms often vary their

dividends overtime, increasing them when cash flows are large and the need for funds is low, and vice-versa. However, Lintner (1956:97) and later Fama and Babiak (1968:1132) find that firms in practice focus on dividend changes than on absolute levels. Thus managers "Smooth" dividends and are reluctant to make dividend changes that might have to be reversed. Consequently, the level of dividends is more stable than the level of earnings. What this tends to suggest is that managers consider dividend stability as a desirable policy in practice. According to Pandey (1999:778) shareholders seem generally to favour this policy and value stable dividends higher than fluctuating dividends.

Dividend stability means frequency of payment and payment of constant amount or constant pay out ratio. Thus Pandey (1999:178) identified three forms of dividend stability viz:

a. Constant dividend per share.

b. Constant payout

c. Constant dividend per share plus extra dividend.

Constant dividend per share refers to the policy of paying a fixed amount per share or fixed rate (say 40 percent) on paid-up capital as dividend every year, irrespective of fluctuation in earnings. The dividend per share can be increased when a firm reaches new levels of sustainable earnings. This suggests that the policy can best be adopted by companies with stable profits. Firms with wide fluctuations in earnings pattern may find

this policy most unsuitable. According to Mainoma (2001:20) a stable per share dividend policy contains substantial information content for common shareholders, especially when a firm with fluctuating earnings maintains its payments during periods of reduced total earnings using dividend equalization reserve. This is because shareholders interpret the policy as an indication of a firm's ability to maintain high level of profitability and liquidity.

Constant payout otherwise known as constant payout ratio policy refers to the payment of a fixed percentage of current earnings every year as dividend. It also refers to the payment of a fixed percentage of previous year's earnings or a long-run average payout. In practice, a constant payout involves the determination of a range say 30% and 70% and making effort to maintain it. Such a policy is easy to administer, reduces the chances of erroneous informational content and appeals to a wide range of investors. The greatest drawback of this policy is the initial step of selecting the appropriate payout ratio. A lot will depend on the use of intuition rather than an objective criterion. Another problem associated with this policy is that it leads to large fluctuations in Dividend Per Share (DPS) if a firm's earnings are unstable (Haiti, 1986:418).

Constant dividend per share plus extra dividend policy involves the setting of a high amount of dividend by companies with stable earnings and a minimum dividend per share with a step-up feature by firms with

fluctuating earnings. The high level or minimum dividend per share is fixed to reduce the incidence of non-payment of dividend. This is usually followed by a payment of an extra dividend (such as an interim dividend) in periods of prosperity. The wisdom here is to prevent investors from expecting that the dividend represents an increase in the established amount (Pandey, 1999:780). A possible advantage of this policy according to Mainoma (2001:21) is that it enables a firm to pay regular dividend without default, and allows a great deal of flexibility for supplementing the income of shareholders only when there is an increase in the firm's earnings. Thus the extra dividend can be omitted without decreasing the regular dividend. A major draw back of this policy is that the shareholders may become use to the extras and always expect it. If the expectation is not met, some shareholders may choose to sell the shares which may result in a fall in market price per share.

Haiti (1984:418) posits that rather than adopting a stable dividend policy, a firm should adopt a "managed dividend policy". A managed dividend policy can take many forms, but the underlying theme is continuity and stability of dividends per share. To achieve continuity and stability, dividends are usually continued during periods of negative earnings, and raised only when a company is confident that the higher dividend can be maintained. A managed dividend policy thus suggests that dividend changes will normally lag behind earnings changes by a year or two. Firms that

follow a managed dividend policy also frequently make use of extra dividend and stock repurchases when profits are exceptionally large and/or worthwhile investment opportunities are scare.

Although the concept of managed dividend policy is appealing, it is difficult to administer and necessarily results in a dividend payout rate that fluctuates around a predetermined target rate. And, for better or worse, this policy treats retained earnings as a residual.

Discussion so far points to the following facts:

1. A firm's dividend policy cannot be divorced from its financing and investment decisions;
2. Dividend policy involves the determination of a firm's payout ratios and invariably the retention rate; and
3. Keeping in mind the preference of shareholders, firms strive to establish a dividend policy that ensures continuity and stability in dividend payment.

Dividend policy therefore involves the determination of a firm's payout ratio having regards to its investment opportunities and the desire to maintain the payout ratio over a long period of time. This is considered as a more appropriate view of dividend policy.

2.2 Dividend Policy and the Value of a Firm

There are three opposing viewpoints on the effects of dividend policy on the value of a firm. On the right, there is a conservative group which believes that increased dividend payout leads to an increase in the value of a firm. On the left, there exists the radical group which contends that increased dividend payout leads to a decrease in the value of a firm. In between these two extremes lies the middle-of-the road party which claims that increase or decrease in dividend payout does not affect the value of a firm.

2.2.1 The Rightists: Dividend Relevance Argument

The traditional finance literature has always advocated for high dividend payout. Graham and Dodd (1934:327) argue that it is a standard practice for investors to attach higher value to firms with high dividend payout and lower value to a firm with low or zero dividend payout. They however recognize the willingness of investors to pay high price for growth stocks.

Another major advocate of the dividend relevance theory is Walter (1963:281) who argues that dividend policy affects the value of the firm. He models the relationship between a firm's rate of return, r, and its cost of capital, k, in determining the dividend policy that will maximize the value of

shareholders. His formula for determining market price per share is stated below:

$$P = \frac{DIV}{k} + \frac{r\,(EPS - DIVVk}{k}$$

This can be re-written as:

$$P - \frac{D1V + (r/k)\,(EPS - DIV)}{k}$$

Where P = market price per share

DIV = divided per share

EPS = earnings per share

r = firm's average rate of return

k = firm's cost of capital or capitalization rate.

The model shows that the market price per share is the aggregate of the present value of an infinite stream of capital gains [r (EPS - DIV)/k]. This implies that the value of share is the present value of all dividends plus the present value of all capital gains.

Walter (1963:290) suggests that a growth firm whose internal rate is more than its opportunity cost of capital (i.e. r > k) should follow a policy of retaining all earnings for internal investment. This is because the firm is capable of expanding rapidly as a result of ample investment opportunities yielding returns higher than the opportunity cost of capital. For the normal firm with r=k, dividend policy will have no effect on its market value per

share. However, declining firms with r < k, should follow a policy of paying out 100 percent of its earnings.

According to Walter's model, the value of a firm will be affected positively where its internal rate of return is less than its opportunity cost of capital. This implies that higher payout ratio will increase the market value per share of the firm's stock and vice-versa.

Francis (1972:344) summarizes the assumption of Walter's model as follows:

1. The firm finances all investments through retained earnings; debt, or new equity is not issued.
2. The firm's rate of return, r, and cost of capital, k, are constant.
3. All earnings are either paid as dividends or reinvested immediately.
4. Beginning earnings and dividends do not change.
5. The firm has a very long or infinite life

Solomon (1963:139) and Pandey (1999:749) criticize the model on the ground that it mixes dividend policy with investment policy of the firm. The model's assumption that no external financing, debt or equity, is used to finance investment opportunities suggests that either the firm's investment or dividend policy or both could be sub-optimum. In addition, a firm's rate of return, r, and opportunity cost of capital, k, do not remain constant. The value of r will tend to decrease as more and more investment is made. The value of k on the other hand will change directly with the firm's risk.

What is obvious from the above discussion is that Walter's model does not provide clear evidence that the value of a firm is affected by its dividend policy. This is because no generalized conclusion can be reached on the basis of the model. Thus the conclusion that dividend policy affects the value of a firm is only true for the model.

One of the major advocates of the dividend relevance theory is Myron Gordon. According to Gordon (1962:352) the market value of a share is equal to the present value of an infinite stream of dividend to be received by the shareholders. This is given by the following formula.

$$Po = \frac{D, + D_2 + \ldots + D_n + P_n}{(1+k) \quad (1+k)^2 \quad (l+k)^n}$$

Where Po = current market price per share

P_n = estimated net share price at the time of disposal

D_{l5} D_2 = estimated cash dividend receivable in periods 1 and 2

D_n = estimated cash dividend receivable at period n

K = cost of capital of the firm

If the desire is to determine the current market price without disposing off the share in any future date then:

$$\sum_{t=l}^{oo} \frac{}{(1+k)^1}$$

Dividend per share is however expected to grow at a rate g, when earnings are retained. When growth in earnings and dividend resulting from retained earnings is incorporated into Gordon's capitalization model, the present value of a share is determined by the formula:

$$P_{o} = \sum_{t=1}^{\infty} \frac{D_0(1+g)^t}{(1+i)^t}$$

Gordon's model is based on assumptions that are similar to Walter's model. Gordon's conclusions are therefore similar to that of Walter. Consequently, the Gordon's model suffers from the same criticism as the Walter's model.

In recent time, there are finance scholars such as Long (1978:235) and Sterk and Vandanberg (1990:441) from the developed economies whose empirical studies support the dividend relevance theory. In Nigeria, a less developed economy, the empirical works of Uzoaga and Alozienwa (1974:461), and Oyejide (1976:179) also provide anecdotal evidence in support of the dividend relevance theory. Furthermore, the recent works of (2001:15) and Mainoma (2001:119) concur that dividend policy affects the value of firms in Nigeria.

In addition survey researches by Farrelly *et al* (1986:62) and Baker and Powell (1999:6) reveal that corporate managers typically believe that dividend policy affects a firm's value and that an optimal level of dividend payout exists.

There are four common explanations of dividend relevance that have been offered by researchers: the Bird-in-the-Hand, signalling, tax preference, and agency explanations (Baker and Powell, 1999:3)

2.2.1.1 The Bird-in-the-Hand Explanation

The Bird-In-the- Hand argument is based on the assumption that under conditions of uncertainty, investors tend to discount distant dividends (capital gains) at a higher rate than they discount near dividends. Rational investors are risk-averse and therefore, have preference for near dividends to future dividends. This argument was first put forward by Krishman (1933:737) and later supported by Graham and Dodd (1934:327). Miller and Modigliani (1961:411) disagree and call the theory the Bird-in-the-Hand fallacy. Bhattacharya (1979:6) also argues that the reasoning underlying the Bird-in-the-Hand explanation for dividend relevance is fallacious. The riskiness of a project's cash flows determines a firm's risk. An increase in dividend payout today will result in an equivalent drop in the stock's ex-dividend price. Thus, increasing the dividend today will not increase a firm's value by reducing the riskiness of future cash flows.

2.2.1.2 The Signalling Explanation

Another possible reason for paying dividends is the use of dividend policy to communicate information about a firm's future prospects to investors. The theoretical analysis of dividends as a signalling device was first developed by Solomon (1963:142). He contends that dividends may offer tangible evidence of the firm's ability to generate cash. He states that "… in an uncertain world in which verbal statements can be ignored or misinterpreted, dividend action does provide means of making a statement that speaks louder than a thousand words". This view is later supported by Ross (1977:23). Various dividend-signalling models have also been developed by Bhattacharya (1979:259, 1980:5), Miller and Rock (1985:1031), and Ofer and Thakor (1987:365). The models posit a positive relationship among dividend policy changes, equity, values and subsequent performance.

Information asymmetry suggests that corporate managers have information that investors do not have. Managers may use a change in dividends as a way to signal this private information and thus reduce information asymmetry. In turn, investors may use dividend announcements as information to assess a firm's stock price. On balance, much empirical evidence supports the view of dividends as a signalling device. (See Woolridge, 1982:237, 1983:1607; Asquith and Mullins, 1983:77; Benesh *et al,* 1984:131; Ghosh and Woolridge, 1988:281; Healy and Palepu,

1988:149; Bajaj and Vijh, 1990:193; Christie, 1994:459; Michaely *et al*, 1995:573 and Impson, 1997:407).

Although managers can use dividend actions to convey useful information, dividend changes may not be perfect signals. According to Easterbrook (1984:650), dividend increases may be ambiguous signals unless the market can distinguish between growing firms and disinvesting firms, that is, those without investment opportunities. For instance, Soter *et al* (1996:4) note that FPL Group, the parent company of Florida Power and Light company, announced a 32 percent reduction in its quarterly dividend on May 9, 1994 for strategic reasons, not problems in cash flow. Initially, the stock market reaction to FPL's announcement was negative. However, after a careful review of FPL's reasons for the reduction, analysts concluded that the action was not a signal of financial distress but rather a strategic decision designed by management to improve the firm's long-term financial flexibility and growth prospects. After the financial community adopted this view, FPL's stock began to recover.

2.2.1.3 The Tax-Preference Explanation

Another explanation of why dividend policy matters involves the tax effect. According to the tax preference theory, investors may favour retention of earnings over dividend payments because of tax-related reasons (Brennan, 1970:417; and Stapleton, (1972:1273). The favourable treatment

of capital gains over dividends may lead investors to prefer a low or zero dividend payout to high payout.

Because the tax-effect differs among various types of investors, investors may be attracted to firms that have dividend policies appropriate to their particular tax circumstances. This theory is referred to as the tax clientele effect. Other things being equal, stocks with low or zero payouts should attract investors in high tax brackets and vice-versa. According to Ang (1987:25) empirical evidence on the tax preference explanation is still inconclusive. Different researches in the United States provide conflicting explanation on the impact of the 1986 Tax Reform Act (TRA) on corporate dividend policy. The Act provides, among other things, for a capital gains cut from 28 percent to 18 percent, and the elimination of Investment Tax Credit (ITC). An increased dividend payout ratio is hypothesized subsequent to the TRA's passage because of the balanced tax treatment of private investor income whether from capital gains or dividends. Bolster and Janjigian (1991:511), Means *et al* (1992:153) and Jang (1994:1179) find strong support to this hypothesis. On the other hand, Papaioannous and Savarese (1994:56) can not find support to the hypothesis. Their studies reveal a significant decrease in dividend payout following the TRA's passage. In Nigeria, Adelegan (2001:2) finds that despite the reduction in capital gains tax in 1996 and its elimination in 1998, the value of firms in

Nigeria are positively related to dividend. The tax clientele theory therefore, is still contentious.

2.2.1.4 The Agency Explanation

Another popular view of dividend relevance advanced by Jensen and Meckling (1976:305), and extended by Rozeff (1982:249) and Easterbrook (1984:650), is the agency theory. The theory derives from the conflict of interests between corporate managers (agents) and outside shareholders (principal). The theory explains that management can consume excessive perquisites out of undistributed corporate earnings and invest the retained funds suboptimally. This conflict leads to agency costs. The theory thus posits that dividend mechanism provides an incentive for managers to reduce agency costs related to the principal/agent relationship. One way to reduce agency cost is to increase dividends. Dividend payment reduces internal cash flow subject to management discretion and forces the firm to seek more external financing. Raising outside capital subjects the firm to the scrutiny of the capital market and reduces the possibility of suboptimal investment.

Several empirical studies provide support for the agency explanation of dividends. They include Rozeff (1982:24), Crutchley and Hansen (1989:36) and *Moh'd etal* (1995:367).

2.2.2 Middle-of-the-Road Party: Dividend Irrelevance Theory

The Middle-of-the-Road Party was founded in 1961 by Miller and Modigliani (usually referred to as "MM"), following their publication of an article showing the irrelevance of dividend policy in a world without taxes, transaction costs or other market imperfections. The assumption of MM as summarized by Ross *et al* (1996:486) and Pandey (1999:758) are as follows:

1. Perfect capital markets. The firm operates in perfect capital markets where investors behave rationally, information is freely available to all, there are neither taxes (or differences in tax rates applicable to capital gains and dividends) nor brokerage fees, and no single participant can affect the market price of the security through his or her trades.

2. Homogeneous expectations. All individuals have the same beliefs. There is therefore no risk or uncertainty and one discount rate is appropriate for all securities and all time period. That is, $r = k = k_t$ for all t

3. Investment and Borrowing policy given. The investment and borrowing of the firm are set ahead of time, and are not altered by changes in dividend policy.

On the basis of these assumptions, MM argue that the value of the firm depends on the firm's earnings which result from its investment

policy and not how the earnings is split between dividend payout and retention.

A firm, operating under perfect market conditions, may face one of the following three situations regarding dividend payment.

a. The firm has sufficient cash to pay dividends.

b. The firm does not have sufficient cash to pay dividends, and therefore, issues new shares to finance the dividend payment.

c. The firm does not pay dividend, but a shareholder needs cash.

In the first instance, shareholders receive cash when dividends are paid by a firm. The firm's cash account will have to be credited to reduce the firm's cash balance. Shareholders' gain in the form of cash dividend has been even out by a decline in the firm's cash balance. There is therefore a transfer of wealth from shareholders' one pocket to another pocket, (since shareholders have claims to the firm's assets). Hence, there is no net gain or loss. Since it is a fair deal under perfect capital market, the value of the firm will remain the same.

In the second situation, the issue of new shares to finance the payment of dividends has two implications. First, the new shareholders will part with their money only if they are offered shares that are worth as much as they cost. Where assets, earnings, investment opportunities and therefore, market value are unchanged, the firm can only satisfy the condition if there is a

transfer of value from the old to the new shareholders in the form of capital loss since the value of their claim on assets reduces. The wealth of the shareholders will thus remain unchanged. Second, the capital loss suffered by the existing shareholders will be offset by the cash dividends they receive. The cash represents the fair price per share paid by the new shareholders. There is no net gain or loss as both transactions are fair, and thus the value of the firm will remain unaltered after the transactions.

In the third situation, if the firm does not pay dividend and a shareholder needs cash, he can "create" his own dividend policy by selling a part of his or her shares at a fair market price for cash. Conversely, if a company pays a higher dividend than a shareholder desires, the shareholder can use the unwanted dividends to buy additional shares of the same or similar company. If shareholders could create their own dividend policy without incurring brokerage costs or suffering tax deduction then the firm's dividend policy is irrelevant.

The principal conclusion of MM's dividend irrelevance theory is that dividend policy does not affect the required rate of return on equity, K. This conclusion has been hotly debated in the academic circles. In particular, Lintner (1962:243) and Gordon (1963:264) argue that K decreases as the payout is increased because shareholders are less certain of receiving the capital gains which are supposed to result from retaining earnings than they are of receiving dividend payments.

MM disagree with Lintner and Gordon's position. They argue that K is independent of dividend policy, which implies that shareholders are indifferent to dividends and capital gains. MM called the Linter-Gordon argument the Bird-in-the-Hand fallacy because in MM's view, most investors plan to reinvest their dividends in the stock of the same or similar firms, and in any event, the riskiness of the firm's cash flows to shareholders in the long run is determined by the riskiness of operating cash flows, not by dividend policy.

Several empirical studies have been conducted to provide support to the dividend irrelevance theory. The most outstanding of these studies are those of Black and Scholes (1974:21), Miller and Scholes (1978:333) and Miller (1986:451). Miller, Black, and Scholes contend that the irrelevance theory works even when MM's assumptions are relaxed. They react to the dividend relevance hypothesis as follows:

a. Firms recognized the existence of clientele long ago. Many firms therefore, must have switched to low or high payout policies to satisfy fully the clientele's demand. If so, then there is no incentive for additional firms to switch to low- or high payout policies since their demands have been satisfied. Hence dividend policy has no effect on prices or returns. If this argument is valid, then it follows that no general association should be observed between dividend policy and market values, and the value of any individual company would be

independent of its choice of dividend policy. This is not however the case.

b. Firms will not have generous payout policies unless they believe that this is the desire of the investors. However, the question "why should so many investors want high payout?" remains unanswered. The general believe in the financial world is that dividend is to investors what salaries and wages are to employees. Therefore, just as employees will want pay rise so also investors will want high payouts.

c. Investors usually pay high taxes on dividends. If high dividends bring high taxes, then it is difficult to believe that investors get what they want. The middle-of-the-roaders argue that there are several loopholes in the tax system which determined shareholders could exploit to avoid tax on dividends. Thus even in a world with taxes, dividend policy remains irrelevant. The recognition of investors' attitude towards dividend as homogeneous is not realistic. In practice different groups or clienteles of shareholders prefer different dividend payout policies not necessarily because of taxes. For example, retired investors and institutional investors (such as a university endowment fund and trustees for individuals) generally prefer cash income, so they may want the firm to payout a high percentage of its earnings. On the other hand, shareholders in their peak earning years may prefer

reinvestment, because they have less need for current investment income. This category of shareholders will prefer low-payout.

A major assumption in MM's irrelevance theory is rationality in the behaviour of investors. Psychologists' experiments show that human beings are not 100 percent rational decision makers. Schifrin and Statman (1984:253) use some of the psychologists' result to argue that investors may have an irrational preference for cash dividends.

MM's theory of dividend irrelevance therefore can only be considered as valid within the context of a perfect capital market. However, to the best of our knowledge, there is no empirical evidence that proves the existence of such market.

2.2.3 The Leftists: Tax Preference Theory

By the standards of 1961, MM were considered as leftist radicals because at that time many people believed that even under idealized assumptions increased dividend made shareholders better. Following the empirical works of Miller, Black and Scholes, argument has shifted to whether taxes and other market imperfections can alter the dividend irrelevance theory. In the process, MM have been pushed to the centre by a new leftist party which argues for low dividends. The leftists' position is based on MM's argument modified to take account of taxes and costs of issuing stocks.

The crux of the leftists' argument is that whenever dividends are taxed more heavily than capital gains, firms should pay the lowest cash dividends they can get away with. Available cash should be retained or used to repurchase shares. By shifting their distribution policies in this way, firms can transmute dividends into capital gains.

The general belief here is that if dividends are taxed more heavily than capital gains, investors may pay more for stocks with low dividend yields. In other words, investors would accept a lower pre-tax rate of return from securities offering future returns in the form of capital gains rather than dividends. The leftists contend that the market rewards firms with low payout policies.

Empirical studies on the tax preference theory have produced contradictory results. Prior to the 1986 Tax reform in the United States, studies carried out by Litzenberger and Ramaswamy (1979:163 and 1982:429), Bradford and Gordon (1980:109) Blume (1980:567), Morgan (1982:1071) and Ang and Peterson (1985:537) lend support to the tax preference theory. The studies reveal that high-yielding stocks have low prices and offer high returns. Miller and Scholes (1982) disagree with the findings from these studies. They stress the difficulty of measuring dividend yield properly and proving the link between dividend yield and expected returns. Empirical results after the 1986 Tax reform are equally unclear. For example, Casey and Dickens (2000:17) find support to the hypothesis that

the lower the taxes, the higher the payout which is contrary to the dividend irrelevance argument. This finding agrees with the results of the earlier works of Bolster and Janjigan (1991:511), Means *et al* (1992:153) and Jang (1994:1179). On the other hand, the findings of Papioannous and Savarese (1994:56) reveal the contrary.

The preceding discussion shows that there are three theories on dividend policy each offering contradictory advice to corporate managers. The first theory urges the manager to pay high dividends, the second theory advises managers to vary dividend payment (either high or low) and the third theory urges the manager to pay low dividends. These contradictory theories may thus put the manager in a dilemma. The most logical way to resolve the problem is to test the theories empirically. Unfortunately many such tests have been conducted, but their results have been unclear. Two reasons are responsible for this: (1) for a valid statistical test, variables other than dividend policy must be held constant; that is the sample companies must only differ in terms of their dividend policies, and (2) each sample firm's cost of equity must be measured with a high degree of accuracy, since a firm's cost of equity is essential in determining the value of the firm. Neither of these two conditions holds - there are no publicly owned firms that differ only in their dividend policies, nor can precise estimates of the cost of equity be obtained.

All the theories also assume that the attitude of investors towards dividend policy is homogeneous. That is, investors uniformly prefer either high or low dividends. In real life, individual investors do have strong preferences. Some prefer high dividends, while others prefer low dividends. These differences among dividends help explain why it is difficult to reach any definitive conclusion on which of the three theories is best. Even so, there is a preponderance of evidence that tends to suggest that in practice, investors prefer firms which follow a stable, predictable dividend policy, regardless of the payout level. The primary focus of the present study is not to provide new insights to resolve the dividend puzzle. Hence the study does not enter the debate of why corporations pay dividends. Instead, the contribution of this study lies in providing valuable insights on how corporate firms in Nigeria establish dividend policy and the major factors considered in establishing dividend policy.

2.3 Establishing the Dividend Policy of Corporate Firms

Although neither theory nor empirical testing provides a complete answer to the question of whether dividend policy influences the market value of a firm's common stock, firms (and their boards of directors) in practice consider dividend policy as an important decision. They view it as being important both in and of itself, and because of its information content (Pinches, 1984:469).

There are both theoretical and empirical guides on how firms should establish dividend policy in practice. According to Brigham and Houston (1998:550) managers must keep two points in mind when deciding how much cash should be distributed to shareholders. (1) The overriding objective is to maximize shareholders value, and (2) the cash flows produced by the firm belong to its shareholders. Management should refrain from retaining earnings unless it can be re-invested to produce returns higher than shareholders could themselves earn by investing in investments of equal risk. On the other hand, internal finance (retained earnings) is cheaper than external equity (new common stock). This encourages managers to retain earnings and this reduces the likelihood of raising equity at a later date to fund future investment projects.

There is no one way of establishing dividend policy because one size does not fit all. Some firms produce a lot of cash but have limited number of investment opportunities. This is true for mature firms with few opportunities for growth. Such firms are likely to distribute a large percentage of their cash to shareholders, thereby attracting investors which prefer high dividends. Other firms generate little or no excess cash but have many good investment opportunities. This is often true of new firms with opportunity for growth. Such firms often distribute little or no cash to their shareholders, thereby attracting investors who prefer capital gains.

The establishment of dividend policy having regard to a firm's investment opportunities, target capital structure, and availability of cost of external capital is referred to as the residual dividend theory. Although the residual dividend theory has been criticized for giving room for fluctuation in dividends, Brigham and Houston (1998:555) argue that firms, should use the residual policy to help set their long-run target payout ratios, but not as a guide to the payout in any one year. This can be achieved if firms are able to:

1. Estimate what their marginal cost of capital and investment opportunity schedules are likely to look like, on average, over the next five or so years.
2. Use the forecast marginal cost of capital and investment opportunity information to find the residual model payout ratio and amount of dividends during the planned period.
3. Set a target payout ratio based on the projected data.

Pinches (1984:470) observes that most firms in practice prefer to maintain a steady and increasing level of cash dividends per share over time. Equally important, there is an extreme reluctance to reduce cash dividends. Thus most firms in practice follow what might be called a smoothed residual dividend policy. They set the cash dividend policy based on the following considerations:

1. The yearly dividend is set as a constant amount per share.

2. A target dividend payout ratio is established which the firms hope to maintain over time.
3. Dividends will be increased when and if it appears the increased amount per share can be maintained.
4. The amount of cash dividends per share will be reduced only with great reluctance.
5. Over the long run, the firms attempt to finance capital expenditures with internally generated funds (supplemented only occasionally, if at all, by new common stock) and debt, while fluctuating around their target capital structure.

The smoothed residual dividend policy is based on maintaining a stable cash dividend per share so that the equity portions of new capital expenditures are financed internally to the degree possible. At the same time, the firm attempts to maintain both the target dividend payout and target capital structure over time.

The theoretical guides so far discussed agree substantially with empirical findings on how firms establish dividend policy. Lintner (1956:77) conducted a classic study on how U.S. managers make dividend decisions. He was the first to ask corporate managers about their perception of dividends and dividend policy. After identifying fifteen (15) variables that have a beating on dividend decisions, he conducted intensive interviews with managers responsible for the dividend decisions of 28 well-established

industrial companies. He concluded that the most important determinant of the size of a company's dividend is a change in company earnings that results in a payout ratio that is "out of line" with the firm's target payout ratio. He explained that firms tend to make periodic partial adjustments in the payout ratio in the direction of the target payout ratio, rather than making dramatic changes in the cash dividend paid. Managers do this because they believe that shareholders prefer a steady stream of dividends to a fluctuating dividend. Thus, managers smooth dividend payment streams in the short run to avoid frequent changes.

Lintner developed a compact mathematical model to describe the dividend decision process. When he tested his proposition, he found that his partial adjustment model explained 85 percent of the dividend changes year to year. Based on additional tests, he found that the model worked over longer periods, not just for the period he used to develop the model. Other researches such as Rozeff (1982:249), Lauenstein (1987:80) and Alii *et al* (1993:523) have developed other models of corporate dividend policy. According to Baker and Powell (1999:19) these models have been found to be "naive" in their nature because they lack accuracy in predicting corporate dividend policy.

Several empirical studies in the developed economies have confirmed the dividend policy beliefs of managers, as described by Lintner. Brittain (1964:272, 1966:215) and Fama and Babiak (1968:1132) re-evaluated

Lintner's model. Their results supported Lintner's view that managers prefer paying a stable dividend and are reluctant to increase dividends to a level that the firm cannot sustain. Fama and Babiak find that changes in a firm's dividend per share are largely a function of the firm's target dividend payout ratio, current or lagged earnings, and the last period's dividend. They concluded that Lintner's basic model performed well relative to alternative specifications. Jose and Stevens (1989:651) find stable market values for steady growing dividends per share rather than stable payout ratios. In a recent extensive empirical analysis of changes in dividends, Benartzi *et al.* (1997:1032) conclude that "... Lintner's model of dividends remains the best description of the dividend setting process available". Several surveys conducted by Baker *et al* (1985:78), Farrelly *et al.* (1986:62), Baker and Farrelly (1988:79), Farrelly and Baker (1989:89), Pruitt and Gitman (1991:409), Baker and Powell (1999:8, 2000:9) found continued support for Lintner's results.

Empirical studies in the developing economies also lend support to Lintner's results. Rao and Sarma (1971:25) tested the dividend and retained earnings of public and private limited companies in India using the Lintner's model. The study covered the period 1955-56 to 1965-66. They used three different definitions of earnings: (a) profit after tax; (b) cash flow; and (c) profit before depreciation.

They observed that Lintner's model is appropriate with net profit significant in 5 industries and cash flow in other 4. Dhameja (1978:125) used a sample of 158 non-government public limited manufacturing companies listed on various Indian Stock Exchanges to test the application of Lintner's model. He tested dividend behaviour of Indian companies by size (total assets and total sales), industry (based on Bombay Stock Exchange classification), growth (in total assets and earnings per share) and control (as given in monopoly and enquiring report and the Dott committee). The study found that there was no statistically significant relationship between dividend payout on the one hand, and industry and size on the other hand. Growth was inversely related to dividend payout and was found to be significant. Dhameja also applied Lintner's model to the pooled data for the years 1963-72. The results reveal that dividend decisions are better explained by Lintner's model with current profits and lagged dividend as explanatory variables.

In Nigeria, one of the earliest studies conducted on the application of Lintner's model is that of Oyejide (1976:179). Oyejide examine empirically the extent to which Lintner's model could explain the observed dividend behaviour of Nigerian firms. The study used a sample of 19 companies registered with the Lagos Stock Exchange and covered a period of eight years, from 1969 to 1976. The study concludes that the Lintner-type conventional models serve as powerful devices for explaining the dividend

behaviour of corporate firms in Nigeria. Izedonmi and Eriki (1996:15) used data from 1984 to 1989 to test the application of Lintner's model in Nigeria. The study found support in Nigeria for Lintner's model.

The underlying assumption in the Lintner's model is that investors react identically to earnings and preceding dividend level of all firms implying constant response coefficients. This assumption is not realistic. Several studies have provided empirical evidence that the response coefficients are not constant, but they are affected by firm-specific, industry-specific and economic factors, such as firm size, industry classification, magnitude of accruals, quality of earnings and economic policy changes (Easton and Zmijewski, 1989:117; Collins and Kotheri, 1989:143; Dechow, 1994:193; Charitou and Vafeas, 1998:225; and Adelegan, 2000:28).

Other researchers have questioned the efficacy of mathematical models in explaining the dividend policies of firms. Bond and Mougoue (1991:165) conducted empirical tests to see if the target dividend payout rates and the speed of adjustment implied in Lintner's (1956:79) behavioural model accurately characterized firm's dividend policies. They concluded that the partial adjustment model does not reflect the unique dividend policies of individual firms. In their review of the evolution of corporate dividend policy, Frankfurter and Wood (1997:16) observe that firms dividend-payment patterns are a cultural phenomenon. They concluded that dividend policy cannot be modelled mathematically and uniformly for all

firms at all times. Thus Frankfurter and Wood advised researchers to study dividend policies more carefully as a culturally oriented phenomenon rather than expending efforts on mathematical model building. However, Miller and Modigliani (1961:411) argue that all economic theories are based on simplifying assumptions, and that the validity of a theory must be judged by empirical tests, not by the realism of its assumptions. The empirical results that lean support to the Lintner's behavioural model are overwhelming and current. It will therefore be difficult for any study on dividend behaviour in the present time to put the Lintner's model in abeyance.

Some researchers have modified the Lintner's model by incorporating the cash flow variable either for explanatory or predictive purposes or both. For example, Fama and Babiak (1968:19), Hagerman and Huefher (1980:39), Crum and Ketz (1988:13), Simons (1994:577) and Charitou and Vafeas (1998:252) attempted to determine the association between dividend changes and cash flows, and to predict dividend changes using cash flow. The findings from these works have been inconclusive. Using Lintner's model and Lintner-Brittain modified versions, Fama and Babiak (1968:19) and Hagerman and Huefher (1980:39) observed significant support for Lintner's model. They found cash flows to be insignificant in predicting changes in dividend.

Simons (1994:577), Crum *et al* (1988:13) and Charitou and Vafeas (1998:225) analyzed the dividend changes cash flow relationship using more

refined cash flow measures. Cash flow was used as a variable in a dividend-change model with profits and previous dividends. The Piece wise linear regression results reveal that cash flow does not consistently add incremental value to profits and previous dividend, which already exist in the Lintner model, in explaining dividend changes. The results however corroborate Lintner's work in all the circumstances tested.

Adelegan (2003:35) re-evaluates the incremental information content of cash flows in explaining dividend changes using a sample of 63 quoted firms in Nigeria over a testing period from 1984 to 1997. The study tested the association of cash flows with dividend changes using the modified Linrner-Brittain model as adopted in Charitou and Vafeas (1998:225). The empirical results reveal a significant relationship between dividend change and cash flow.

The variation between Adelegan's results and findings of previous works could be explained in terms of the definition of dividend used. While previous works defined dividend in terms of cash dividend, Adelegan modified the definition to include stock dividend. As Ross *et al* (1996:482) argued, stock dividend is not a true dividend. Adelegan's findings thus remain inconclusive. Inspite of the mixed results, the findings from the various researches do not preclude the ability of cash flows to explain dividend changes since payout policy is dependent on cash availability.

Given that managers in practice set dividend policies for their firms in most instances, in accordance with Lintner's behavioural model, the question that readily comes to **mind** is: what factors do managers consider when making dividend policy decisions? The section that follows attempts to provide answer to this question.

2.4 Determinants of Corporate Dividend Policy

Academics have developed many theoretical models describing **the** factors that managers should consider when making dividend policy decisions. Over the years, the number of factors identified in the literature as being important to consider in making dividend decisions has increased substantially. In fact, it became so large that Ang (1987:55) wrote, "We have moved from a position of not enough good reasons to explain how dividends are paid to one of too many. Unfortunately, some of these may not be very good reasons, i.e., not consistent with rational behaviour."

Researchers took divergent paths in identifying factors that influence dividend policy decisions. Some took a normative approach and developed theories about how firms should make dividend policy decisions. Other researchers, who took a behavioural approach went directly to managers and asked them what they actually consider when making such decisions.

In this section, the factors that determine corporate dividend policy are discussed under two headings: (1) theoretical factors that influence

corporate dividend policy, and (2) survey and empirical studies on the determinants of corporate dividend policy.

2.4.1 Theoretical Factors that Influence Corporate Dividend Policy

Several authors have identified different factors that influence corporate dividend policy. A comprehensive discussion on this issue has been presented by Brigham and Houston (1998:562). These authors grouped the factors into **four** broad categories viz: (1) constraints on dividend payments, (2) investment opportunities, (3) availability and cost of alternative sources of capital, and (4) effects of dividend policy on cost of capital, k_s.

2.4.1.1 Constraints

There are five constraints to the payment of dividend. These are:

1. Bond indentures. Debt contracts often limit dividend payments to earnings generated after the loan was granted. Also, debt contracts often stipulate that no dividends can be paid unless the current ratio, times-interest-earned ratio, and other safety ratios exceed stated minimums.
2. Preferred stock restrictions. Common dividend cannot be paid if a firm has omitted its preferred dividend. The preferred arrearages must be satisfied before common dividends can be resumed.

3. Capital impairment rule. In most countries, legal rules provide that dividend payments cannot exceed the balance sheet item "retained earnings." This legal restriction is designed to protect creditors. Without such rule, a firm that is in trouble might distribute most of its assets to stockholders. This rule does not preclude the payment of liquidating dividends out of capital, but they must be indicated as such, and they must not reduce capital below the limits stated in debt contracts.

4. Insolvency rule. Legal rules in some countries forbid a firm from paying dividends while insolvent. Insolvency is defined as a situation in which current liabilities exceed current assets; to pay dividends under such conditions would mean giving shareholders funds that rightfully belong to the creditors.

5. Availability of cash. Cash dividends can only be paid with cash. Cash shortage can therefore restrict dividend payments. However, the ability to borrow can offset this factor.

2.4.1.2 Investment Opportunities

Dividend payments will usually be influenced by the availability of investment opportunities and the possibility of accelerating or delaying investment projects.

1. Availability of investment opportunities. Firms with higher investment opportunities will tend to maintain a low target payout ratio. On the other hand, if a firm's investment opportunities are low, the firm will tend to maintain a high target payout ratio.
2. Possibility of accelerating or delaying investment projects. The ability to accelerate or postpone investment projects will permit a firm to adhere more closely to a stable dividend policy.

2.4.1.3 Alternative Sources of Capital

The ability of a firm to raise capital from external sources will be determined by the floatation cost of selling new stock, substitution of debt for equity and dilution of control.

1. Floatation cost of selling new stock. If a firm needs to finance a given level of investment by issuing new common stock, consideration must be given to floatation costs. Where floatation costs are high, it will be better for the firm to set a low payout ratio and finance the investment through retention rather than through sale of new common stock. On the other hand, a high dividend payout ratio is more feasible for a firm whose floatation costs are low.
2. Ability to substitute debt for equity. A firm can finance a given level of investment with either debt or equity. Stock floatation costs permit **a** flexible dividend policy because equity can be raised either by

retaining earnings or by selling new stock. A similar situation holds for debt policy: if the firm can adjust its debt ratio without raising costs sharply, it can pay the expected dividend, even if earnings fluctuate by using a variable debt ratio.

3. Control. If shareholders are concerned about dilution of control, the management may be reluctant to sell new stock hence the company may retain more earnings.

2.4.1.4 Effects of Dividend Policy on Cost of Capital (K_s)

The effects of dividend policy on K_s may be considered in terms of four factors: (1) stockholders' desire for current versus future income (2) perceived riskiness of dividends versus capital gains, (3) the tax advantage of capital gains over dividends, and (4) the information content of dividends.

In addition to the factors discussed above Pandey (1999:77) identified access to capital market and inflation as constraints to dividend payments.

1. Access to capital market. A firm that is able to raise fund from the capital market can pay dividends even where its liquidity position is low. A fast growing firm with a tight liquidity position will not face any difficulty in paying dividend if it has access to the capital market. A company which does not have sound cash position and is also unable to raise funds will not be able to pay dividends.

2. Inflation. Financial statements are usually prepared on historical cost basis. Depreciation is charged on the basis of the original cost of an asset. During inflationary period, funds saved on account of depreciation would not be adequate to replace assets or to maintain the capital intact. Consequently, to maintain the capital intact and preserve the earnings power of the firm, earnings would be retained.

2.4.2 Survey and Empirical Studies on the Determinants of Corporate Dividend Policy

Lintner (1956:77) was the first researcher to carry out a survey and empirical study on the determinants of corporate dividend policy. Lintner surveyed 28 well-established industrial companies in order to identify the major factors that determine the dividend decision of the firms. The study reveals that the anticipated level of future earnings and the pattern of past dividends are the major determinants of a firm's dividend payment. On the basis of the responses from the survey, Lintner developed a mathematical model to describe the dividend behaviour of corporate firms. His model formed the basis for several other studies in both developed and developing economies.

As earlier observed, Frankfurter and Wood (1997:16) have criticized the use of mathematical models in explaining dividend policy of firms because dividend payment patterns of firms are a cultural phenomenon.

Accordingly, they advised researchers to study dividend policies more carefully as a cultural phenomenon.

In accordance with Frankfurter and Wood's advice some researchers have attempted to study dividend policy as a "cultural phenomenon" by surveying corporate managers. Several studies attempt to identify factors that financial managers consider to be most important in determining their firm's dividend policies. In 1983 Baker, *et al* (1985:78), and Farrelly *et al* (1986:62), Surveyed 562 New York Stock Exchange (NYSE) firms that have what they describe as "normal" dividend policies. Based on their analysis of 318 responses from manufacturing, wholesale/retail, and utility firms, they concluded that the major determinants of dividend payments are the anticipated level of future earnings and the pattern of past dividends. These factors are consistent with those identified by Lintner. Their results also reveal that managers believe that dividend policy affects share value and that managers of utility companies view the dividend decision somewhat differently than manufacturing and wholesale/retail firms. The major limitation of these studies is that they restricted their sample to three broad industry groups as representation of US firms on the NYSE. Thus the results of the study cannot be generalised for all firms.

A later study by Baker and Farrelly (1988:79) reported similar results for what they call dividend achievers (companies having unbroken records of at least ten consecutive years of dividend increases). Farrelly and Baker

(1989:89) conducted a survey of institutional investors to learn what the investors consider important in a firm's dividend policy. The results of these studies are also consistent with Lintner's behavioural model which emphasises the importance of dividend consistency.

Pruitt and Gitman (1991:409) asked the financial managers of the 1,000 largest U.S. firms to describe the interplay among the investment, financing, and dividend decisions in their firms. The results suggest that the following factors are important influences on the amount of dividends paid: Current and past years' profits, the year-to-year variability of earnings, the growth rate of earnings, and prior years' dividends. These findings are consistent with Lintner' s behavioural model and the survey work of Baker *et al* (1985:78) and Farrelly *etal* (1986:62).

In 1997, Baker and Powell (1999:22, 2000:20) carried out a survey of 603 NYSE - listed US firms that paid cash dividend. The focus of the study was to determine the views of the firms' managers about the factors that influence dividend policy. The findings of the study show that the most important determinants of a firm's dividend policy are the level of current and expected future earnings and the pattern or continuity of past dividends. The findings are highly similar to those in the surveys of Baker *et al* (1985:78), Farrelly *et al* (1986:62), and Baker and Farrelly (1988:79). Taken together, these findings suggest little change in dividend determinants overtime. The study has three major limitations. First the study used a

sample of only three broad industry groups to represent US firms on the NYSE. Second the study obtained only one manager's views about dividend policy for each of the firms. Finally, the study limited the length and scope of the survey. These factors would have serious constraints on making general conclusions from the studies.

Most recently, Baker and Powell (2001:19) carried out a survey of 630 Nasdaq-listed US firms that paid dividends each quarter during years 1996 and 1997. Questionnaires were sent to the top financial officers of the 630 firms in mid-June, 1999. The total responses rate was 29.8%. The purpose of the study was to identify the most important factors used by U.S. firms that trade on the NASDAQ in making dividend policy decisions. Based on responses from 188 managers, the study conclude that the pattern of past dividend, stability of earnings, and the level of current and expected future earnings appear to be the most important determinants of dividend decisions. In addition, the study reveals that in general, the same factors that are most important to NASDAQ-listed firms are also important to NYSE listed firms, as reported in previous surveys. The results suggest that many managers are still making dividend decisions consistent with Lintner's (1956:79) survey results and model.

The conclusions as Baker and Powell (2001:9) note do not imply that the factors that influence dividend decisions are equally important to all firms. Because various market frictions or imperfections may affect firms in

different ways, no universal set of factors is likely to be applicable to all firms. Nonetheless, the study when coupled with other empirical studies and mathematical models suggests that certain factors emerge as being consistently important overtime.

The study suffers from two major limitations. First, the mean value of selected characteristics between responding and non-responding firms reveals significant differences which signify a non-response bias. Second, all non-financial firms are consolidated into a single group because of the small number of responses from most industries. Consequently, the findings of the study involving specific industry groups cannot be compared with those of previous surveys.

In Nigeria, Mainoma (2001:106) surveyed the views of four hundred (400) respondents comprising investment managers, financial analysts, shareholders and finance scholars, on the determinants of dividend policy in Nigeria. The survey result reveals that in addition to dividend payout and retention, other determinants of dividend policy in Nigeria include change in total earnings, size of the company, cash requirement by companies, past and current year profits, investment opportunities, industry influence, and legal considerations.

The limitation of the survey is that respondents were given a limited menu of options (only five) as to the factors that influence dividend policy in Nigeria. The respondents were denied the opportunity of airing their views

on the matter. In addition, the nature of the respondents precludes reliance on their opinion. The most appropriate respondents to question on the determinants of dividend policy are corporate managers and financial managers because they are directly involved in dividend decisions.

It is clear from the preceding discussion that different managers at different times attach varying importance to the factors that influence **a** firm's dividend decision. However, certain factors such as level of current and **past** earnings and **the** pattern or variability of past dividends have emerged as being consistently important over the years. These factors are consistent with those identified by Lintner (1956). The major implication of the preceding surveys and empirical studies therefore, is that although some factors (such as current earnings and previous dividend) appear to be consistently important in determining corporate dividend policy, it will be wrong to ignore the importance of other factors depending on a firm's industry, size or country's characteristics.

2.5 A Critique of Existing Dividend Behaviour Models

Since 1956, several dividend behaviour models have been developed. These include Lintner's (1956:79) Dividend-Change Model and the various modifications to the model as contained in the works of Brittain (1964:272) and Fama and Babiak (1968:1132), and Rozeffs (1982:249) Dividend Payout Model which presents an alternative to the Lintner (1956:79) model.

This section reviews these models. It identifies the short-comings of the models and explains how the model of this study overcomes such deficiency.

2.5.1 Lintner's Dividend-Change Model and its Modifications

Prior to 1956, a wide gap existed between theory and practice on the question of how corporate firms establish dividend policy. In order to narrow this gap, John Lintner, in the mid-1950s conducted a classic series of interviews with US corporate managers about their dividend policies. In addition, Lintner looked at the dividend-payout patterns of the firms. He concluded that dividends are more likely to be raised following a permanent, rather than a temporary increase in earnings and that firms have long-run target for their dividend-to-earnings ratio. However, because managers need time to assess the permanence of any earnings rise, dividend changes appear to lag earnings by a number of periods. He explained that firms tend to make periodic partial adjustments in the payout ratio in the direction of the long-run target payout ratio, rather than making dramatic changes in the cash dividend paid. Managers do this because they believe that stockholders prefer a steady stream of dividends to a fluctuating dividend. Managers therefore smooth dividend payment streams in the short-run to avoid frequent changes.

According to Ross *et al* (1996:505), the work of Lintner (1956:97) and the later work of Fama and Babiak (1968:1132) suggest that dividend policy is related to both level of dividends and change in dividends. Level of dividend is described in terms of a long-run target payout ratio. Change in dividends on the other hand is described in terms of how firms smooth out changes in their dividends relative to changes in their earnings. Taken the two ideas together, Lintner's observations suggest that two parameters describe dividend policy: the target payout ratio (P) and the speed of adjustment of current dividends to the target (b) where b lies between zero and one. Lintner therefore suggested the following formula to explain the change in dividends of firms in practice:

$DIV_t - DIVo = b\ (pEPS_t - DIVo)$ ... (1)

Where:

(a) DIVt and DIVo are next years dividends and current year's dividends, respectively.

(b) EPSt is earnings per share in the next year.

An important implication of equation (1) is that changes in dividend overtime do not correspond exactly with changes in earnings in the immediate time period. This suggests that Lintner's model describes dividends in terms of a weighted average of current and past earnings. The model can therefore be expressed in the form of the following regression equation:

DIVt - DIVt-1 = a + b (pEPSt - DIVt-1) + et .. .(2)

By adding DIVt-1 to both sides, that is:

DIVt - DIVt-1 + DIVt-1 = a + b (pEPSt - DIVt-1) + et + DIVt-1

The equation becomes:

DIVt = a + bpEPSt - bDlVt-1 + et + DlVt-1

Therefore:

DIVt = a + bpEPSt + (1-b) DIVt-1 + et ...(3)

Taken together, a and b coefficients have been used in several studies to test the hypothesis that management often increases dividends over time rather than cut them.

Other than Fama and Babiak (1968:1132), several empirical studies in both developed and emerging economies have confirmed the robustness of the Lintner's model. Thus Lintner's work became the basis for several studies (for example Rao and Sarma, 1971:25, Dhameja, 1978:125, Oyejide, 1976:179; Bar-Yosef and Lev, 1983:41, Nakamura and Nakamura, 1985:606, Jose and Stevens, 1989:651, Izedonmi and Eriki, 1996:15, and Benartzi *et aU* 1997:1032) and is partly the basis of the model developed in this study.

One of the setbacks of the Lintner's model is that it relates dividend policy to both dividend payment and dividend changes. However, dividend payment and dividend changes were fused together and captured as a single dependent variable in the Dividend-Change Model. The model is thus only appropriate for predicting or explaining dividend changes.

Rather than developing new models, some researchers have modified the Lintner's model either by refining and re-stating the model or by extending the model. The Lintner's partial adjustment model as modified by Brittain (1964:272) states that for year t, target dividend (Di*t) for firm i is related to the firm's earnings (Eit) as follows:

Di*t = riEit ...(1)

Where ri is the firm's target payout ratio.

The dividend change would be:

Dit - Dit-1= ri(Eit- Dit-1) ...(2)

A strict adherence to the payout ratio will lead to a fluctuation in dividend payment. But the managers in Lintner's survey are reluctant to do this. They believe that shareholders prefer a steady progression in dividends. Therefore, even if circumstances appear to warrant a large increase in dividend, they move only partway toward their target payment. Dividend changes will therefore conform to the following model:

ADit = ai + ci(Di*t - Dit-1) ....(3)

Where:

ADit = (Dit - Dit-1), which represents a change in dividend payments, and ci represents a speed of adjustment factor normally assumed to lie between 0 and 1.

From equations (1), (2) and (3) a composite representation of the Lintner model emerges as follows:

ADit = ai + ci(riEit - Dit-1) ...(4)

After adding Dit-1 to both sides of the equation, it becomes:

Dit = ai + ciriEit +(l-ci)Dit-l ...(5)

or

Dit = ai + biEit + diDit-1 ...(6)

Where

bi = ciri

di = (1-ci)

Equation (6) states the hypothesis that current dividend payments can be explained in terms of current earnings performance and the immediate past dividend payments.

Fama and Babiak (1968:1132) replace Lintner's partial adjustment mechanism with their own adaptive expectation model to derive the following equation:

Dit = A,riEit+(l-Xi)Dit-l ...(7)

X is the adaptation factor which has a numerical value lying between zero and one.

The model represented by equation (7) attempts to explain current dividend payments in terms of current earnings and lagged dividends. This is, essentially, the same kind of information which equation (6) conveys. Equation (7) may therefore be logically regarded as no more than a special case of equation (6).

Some researchers have extended the Lintner's model by grafting new explanatory variables into it. Darling (1957:209) for instance, adds an index of liquidity as well as a measure of sales (or business) fluctuations; while Pogue (1971:181) introduces variables measuring each firm's income variability and indebtedness. Several other authors introduce cash flow into the dividend-change model. These authors include Hagerman and Huefner (1980:39), Crum *et al* (1988:2), Simons (1994:577), Charitou and Vafeas (1998:225) and Adelegan (2003:35).

2.5.2 Rozeff s Dividend Payout Model

Rozeff (1982:249) developed a five-variable model which relates the level of dividend (dividend payout ratio) to the percentage of stock held by insiders, average growth rate of revenues, forecast revenue

growth, estimated beta coefficient, and the natural logarithm of the number of common stockholders. Rozeff s model takes the following form (coefficient signs show the hypothesised relationship):

PAY = p(sub 0) - p(sub 1)INS - p(sub 2)GR0W1 - P(sub 3)GROW 2 - P(sub 4)BETA + p (sub 5)STOCK + 8

Where

PAY		Average payout ratio over a seven-year period
p(sub 0)		Intercept term
INS		Percentage of common stock held by insiders at the end of the seven-year period 1974 through 1980
GROW 1		Realised average growth rate of revenues over the five-year Period 1974-1979
GROW 2	=	Forecast future five-year average growth rate of revenues over the 1979 to 1984 period
BETA		Estimated beta coefficient reported in value line calculated using five years of weekly data ending in 1979
STOCK		Natural logarithm of the number of common stockholders at the end of the seven-year period
8	=	Error term

According to Rozeff (1982:249), the higher the percentage of stock held by insiders (INS), the lower the dividend payout ratio. Dividend payment functions as a bonding cost by decreasing the time and effort expended by outside ownership to monitor the corporation. If insiders hold a significant portion of the shares, the demand for higher dividend payout falls. Conversely, if insiders own very little of the firm's stock, then higher dividend payouts function to lower monitoring costs.

The realised five-year average growth rate of revenues (GROW 1) is expected to have a negative impact on dividend payout. The rationale for this variable according to Rozeff (1982:249), is that the higher the past revenue growth, the higher the past demand for investment funds to support the revenue growth. Similarly, Rozeff considers the forecast five-year revenue growth (GROW 2) to be negatively related to the dependent variable. The higher the forecast revenue growth, the lower the dividend payout ratio, assuming maintenance of a target capital structure.

Rozeff uses p(BETA) to proxy a firm's operating and financial leverage. According to Rozeff (1982:249), a firm with a higher use of total leverage will have a higher beta. Therefore, to lower the cost of external financing, these higher beta firms will choose lower dividend payout ratios. Dividend payout should then be negatively related to beta. This position assumes the pecking order preference for using internally generated capital before going to the external market to raise funds. Bajaj and Vijh (1990:193) provide empirical support in finding that a firm's beta is inversely related to dividends.

Rozeff hypothesises that the dispersion of ownership, as measured by the total number of stockholders, also affects dividend payout ratios. A smaller number of stockholders would be able to monitor the firm more easily than a larger number. Therefore, as the number of stockholders increases, the likelihood of higher dividend payout ratio increases.

Rozeff (1982:249) finds all five variables to be significant in explaining dividend payment. Later studies by Dempsey and Laber (1992:317) and Dempsey *et al* (1993:3) replicate and extend Rozeff (1982:249) by examining another seven-year period. These studies confirm the stability of Rozeff s original five-variable model.

Casey, *et al* (1999:5) and (2000:7) also extend Rozeff s model in their Tax Reform Act (TRA) model. Their result was consistent with the previous findings of Dempsey and Laber (1992:317) and Dempsey *et al* (1993:3).

Like Lintner's model, the major set-back of Rozeff s model is that dividend level was considered in isolation from dividend changes. The model is therefore appropriate only for explaining or predicting dividend level and not dividend changes.

2.5.3 Limitations of the Existing Models

The major shortcoming of the models discussed above is that with the exception of Adelegan (2003:35), all the models are predicated on the assumption that investors react identically to earnings, preceding dividend level and in some cases cash flow of all firms implying constant response coefficient. This assumption as earlier noted has been criticised by several authors as being unrealistic. The response coefficient has been found to be affected by firm-specific, industry-specific and economic factors. These factors are dynamic and not static. Adelegan's model seems to have partially addressed the problems. However, Adelegan's model falls short of capturing some factors that are considered sensitive in the Nigerian context in modelling corporate dividend policy. In addition, the model combines dividend changes and dividend level.

The model in this study attempts to overcome the shortcoming mentioned above in three ways. First, the model captures sensitive factors that are peculiar to Nigeria in modelling corporate dividend policy. Second, the model isolates dividend changes from dividend level. Lastly,

the model incorporates the effect of firm-specific, industry-specific and economic factors on dividend policy.

2.6 Theoretical Framework

The reason for the payment of dividend by corporate firms still remains a puzzle (Baker and Powell, 1999:22). The three schools of thought on dividend policy tend to offer three contradictory advices to corporate managers (Brigham and Houston: 546). The advocates of dividend relevance theory urge firms to pay high dividends since investors generally prefer dividend payment and are prepared to pay a higher price for shares that offer a higher return in the form of dividend (Gordon 1963:352 and Lintner 1962:243). The radical leftists, on the other hand, advise managers to pay a low dividend given the fact that dividends are often taxed more heavily than capital gains. In this way a firm's dividends are transmuted into capital gains (Litzenbeger and Ramaswamy, 1979:567). The advocates of dividend irrelevance theory have taken a middle course. According to this theory, it does not matter whether dividend payment is increased or reduced. Corporate managers may thus vary their dividend policies (Miller and Modigliani, 1961:411, and Black and Scholes, 1974:21).

The three contradictory advice offered in theory can create a dilemma in the mind of corporate managers when establishing dividend policy in practice. Brigham and Houston (1998:550) argue that in practice, investors

may or may not prefer dividends to retention, but they do prefer predictable to unpredictable dividends.

Two basic approaches exist in practice for the establishment of dividend policy. These are the residual dividend approach and dividend stability approach.

Under the residual dividend approach, dividend is set equal to the actual earnings minus the amount of retained earnings required to finance the firm's optimal capital budget or investment opportunities (Brigham and Houston, 1998:551). Thus the residual dividend approach combines three factors, the firm's investment opportunities, its target capital structure and the availability and cost of external capital. Ross *et al* (1996:389) contend that a strict residual approach might lead to a very unstable dividend payout. If investment opportunities in one period are quite high, dividends would be low or zero. Conversely, dividends might be high in the period in which investment opportunities are considered less promising.

The dividend stability approach requires a firm to adopt a managed dividend policy. A managed dividend policy generally involves a reasonably steady increase in dividend rate. Although this can take many forms, the underlying theme is regularity or continuity and stability of dividends per share (Haiti, 1986:418). As earlier noted, it is an established fact that investors differ in terms of their dividend preference. However, virtually all investors dislike an unstable dividend policy for two reasons.

First, dividend instability could send incorrect signals to investors, and second it makes dividend prediction difficult or impossible. A managed dividend policy overcomes these deficiencies by ensuring both stability and predictability of dividend payment (Pinches, 1984:469).

Empirical studies on dividend behaviour show that firms in practice follow a smoothed residual dividend policy by maintaining a steady dividend and increasing the level of cash dividends per share when there is a reasonable ground to believe that such increase can be sustained overtime. This discovery was first reported in the seminal study on dividend behaviour carried out by Lintner (1956:77). The study revealed that firms in practice tend to make periodic partial adjustments in the payout ratio in the direction of the target payout ratio in order to avoid frequent changes in dividend. His partial adjustment model provides a strong support to this proposition. Several empirical works in both the developed and developing economies lend support to Lintner's view that managers prefer a stable dividend policy and set out dividend policy on the basis of current or previous earnings, and the last period's dividend. The studies include Brittain (1964:272, 1966:215), Fama and Babiak (1968:1132), Rao and Sarma (1971:25), Dhameja (1978:125), Oyejide (1976:179), Baker *et al* (1985:78), Farrelly *et al* (1986:62), Baker and Farrelly (1988:79), Farrelly and Baker (1989:89), Jose and Stevens (1989:651), Pruitt and Gitman (1991:1032) and Baker and Powell (1999:8, 2000:9). The basic limitation of these studies is that they

are based on the assumption that investors react identically to earnings and preceding dividend level of all firms implying a constant response coefficient. This assumption has been criticised by some researchers such as Collins and Kotheri (1989:143).

Some studies in recent time have modified the Lintner's model by incorporating cash flow as an explanatory and/or predictive variable. The results of these studies are however inconclusive.

There has been a considerable increase, over the years, in the number of factors used in making dividend decision. Although not all the factors can be rationalised, certain factors such as level of current and past earnings, and pattern of past dividends have emerged as consistently important. However, since a firm's dividend payment pattern is a cultural phenomenon it must continue to change in relation to environment and time.

The pivot around which the argument of this study revolves is that firms' dividend behaviour is dynamic and continuously affected by firm-specific, industry-specific and economic factors, such as firm size, industry classification and economic policy changes. This implies that dividend behavioural models will necessarily have to be modified to capture those factors that are peculiar to a particular period and environment. In Nigeria for instance, some researchers observe that corporate firms usually rely on retained earnings for the purpose of financing investment. Investment should thus constitute an important factor in the dividend decision of

corporate firms in Nigeria. In addition, the Companies and Allied Matters Act 1990 (as amended) captures the insolvency rule. This suggests that insolvency rule should be a major determinant of the dividend policy of corporate firms in Nigeria.

2.7 Summary

There is no agreement in the literature as to what constitutes dividend policy. The reason for this is obvious. Different people view dividend policy from different perspectives. There are three major viewpoints. The first major viewpoint considers dividend as a passive decision variable. This implies that dividends are paid only when a firm has more funds than it requires to finance acceptable investment opportunities. In this instance, dividend policy is related to a firm's financing and investment decisions. The second major viewpoint considers dividend policy as a distribution instrument. Here, dividend policy is viewed as a decision confronting a firm's management on the proportion of earnings to distribute as dividend and the proportion to retain for the purpose of expansion. The third viewpoint relates dividend policy to dividend stability. This viewpoint asserts that firms in practice focus on dividend rate than on absolute dividend levels. Managers therefore "smooth" dividends and rarely make dividend changes that might have to be reversed in the future. This suggests that managers consider dividend stability as a desirable policy in practice.

However, dividend stability could be in three forms: (1) constant dividend per share or dividend rate, (2) constant payout, and (3) constant dividend per share plus extra dividend. Rather than pursuing a stable dividend policy, Hartl (1986:418) urged managers to adopt a managed dividend policy. This policy ensures both continuity and stability in dividend payments.

Although each of these viewpoints has its limitations, dividend policy in practice revolves around them. This implies that the viewpoints cannot be taken in isolation. By striking a balance between the three viewpoints, dividend policy can appropriately be defined as the determination of a firm's payout ratio having due regard to its investment opportunities and the desire to maintain the payout ratio overtime.

Another controversial aspect of dividend policy centres on the relevance of dividend policy to the value of the firm. Three schools of thought have emerged in relation to this issue. First is the conservative rightist group represented by Graham and Dodd (1951:432 and 1962:480), Lintner (1956:97), Gordon (1962:352) and Walter (1963:281). The rightists believe that increased dividend payout leads to an increase in the value of the firm. They offer some explanations of dividend relevance, the most common of which are: the Bird-in-the-Hand Hypothesis, Signalling Hypothesis, Tax Preference Hypothesis, and Agency Theory. The second school of thought is the Middle-of-the-Road Party principally represented by Miller and Modigliani (1961:411). The Middle-of-the-Roaders contend that

in an ideally simple and perfect world, dividend policy has no effect on the value of a firm. Black and Scholes (1986:451) and Miller and Scholes (1978:33) insist that the irrelevance theory works even where there are market imperfections. The third school of thought is the radical leftists. The Leftists posit that whenever dividends are taxed more heavily than capital gains, firms should pay a low cash dividend. The three theories which are valid in their own rights offer contradictory advice to corporate managers. Empirical works that are supposed to resolve the controversy have produced inconclusive results. The reason for this is obvious. In real life, individual investors have varying preferences for dividends. Some prefer high dividends while others prefer low dividends. This makes it difficult for one to recommend any one of the three theories for adoption by managers. Even so, there are overwhelming evidence that tend to suggest that investors in practice prefer firms that follow a stable and predictable dividend policy regardless of the payout level.

Both theoretical and empirical guides exist as to how firms should establish dividend policy in practice. There is no one way of establishing dividend for all firms because firms differ in terms of size, maturity, cash flows and investment opportunities. Mature firms generally have few opportunities for growth and are therefore likely to distribute a large percentage of their cash. The opposite applies to firms with large opportunity for growth.

In theory, there are two basic methods of setting dividend policy. These are the residual dividend theory and dividend stability theory. The residual dividend theory involves the setting of dividend policy having regard to a firm's investment opportunities; target capital structure and availability of external capital. This theory gives room for fluctuation in dividends. However, it can be used to set a firm's long-run target payout ratio rather than a guide to the payout in any one year.

The seminal study conducted by Lintner (1956:97) concluded that firms in practice prefer to maintain a stable and increasing level of dividends per share overtime. Managers therefore try to smooth dividend payments by moving only partway toward the target payout in each year. Also, they do no just consider past earnings performance but look into the future when they set the payment. Subsequent studies, such as Fama and Babiak (1968:1132), Baker and Powell (2000:9) find continued support for Lintner's behavioural model. It will therefore be illogical for any study on dividend behaviour in the present time to put the Lintner's model in abeyance despite its limitations.

Over the years several theoretical, survey and empirical studies have identified the factors that managers consider in establishing dividend policy. Brigham and Houston (1998:563) grouped the factors into four broad categories. (1) Constraints on dividend payments. The constraints include bond indentures, preferred stock restrictions, capital impairment rule,

insolvency rule, availability of cash and investment opportunities, (2) investment opportunities which include availability of investment opportunities and possibility of accelerating or delaying investment projects, (3) Alternative sources of capital which are determined by the flotation cost of selling new stock, substitution of debt for equity and dilution of control (4) effects of dividend policy on cost of capital. This depends on stockholders' desire for current versus future income, perceived riskiness of dividends versus capital gains, the tax advantage of capital gains over dividends, and the information content of dividends. Pandey (1999:777) identifies two additional determinants of dividend policy. These are access to capital market and inflation.

The survey and empirical work of Lintner (1956:77) reveal that the anticipated level of future earnings and the pattern of past dividends are the major determinants of a firm's dividend payment. Several empirical and survey studies were later conducted on the determinants of dividend policy. These include the works of Fama and Babiak (1968:1132), Baker *et al.* (1985:78), Baker and Farrelly (1988:29) Pruitt and Gitrnan (1991:409), and Baker and Powell (1999:22, 2000:20, 2001:19). The findings of these studies are consistent with those of Lintner (1956:77). Although current earnings and previous dividends appear to be consistently important in determining corporate dividend policy, one cannot rule out the importance of other factors depending on the industry or country where the corporations

operate. The existing models on dividend behaviour ranging from Lintner's dividend-change model to Rozeff s dividend payout model do not seem to have taken cognisance of this important fact. The model of this study attempts to correct the limitations identified in the previous models.

The chapter that follows discusses the methodology of the research. It examines the method of data collection, sample design, the model development, and technique of data analysis.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This study employs five independent variables-current profit, previous dividend, cash flow, investment and net current assets-in explaining the dividend behavioural pattern of corporate firms in Nigeria. The study further investigates the effect of growth, firm size and industry classification on the dividend policy of firms in Nigeria.

The methodology of this study integrates the approaches used in two earlier studies. First, like Lintner (1956:97), the study tests the proposition that there is a relationship between dividend change and the five independent variables. Second, the study uses dividend payment as independent variable, like Rozeff (1982:249) who uses similar variable in predicting the pay out of firms over a period of time and across a number of industries.

The study utilises both quantitative and descriptive research approaches for the purpose of addressing the problem of the research.

Quantitative research approach has been used because the variables to be investigated are amenable to empirical measurement and verification. In

addition, the study places emphasis on statistical data and the use of such data in testing hypotheses.

The study adopts the correlational and the cross-section of time series descriptive research design. The correlational and cross-section of time series descriptive research design are considered appropriate because of the following reasons:

a. The study examines empirically the dividend behavioural pattern of corporate firms in Nigeria. This has been done by modelling the relationship between dividend level as well as dividend changes and current profit, previous dividend, cash flow, investment, and net current assets. Furthermore, the study investigates the effect of three dummy variables-growth, firm size and industry classification-on dividend level as well as dividend changes on Nigerian corporate firms using an empirical dividend policy model.

b. The major objective of the research is to establish a basis for explaining and predicting the dividend level as well as dividend changes of Nigerian firms across industries and over a period of time.

In the sections that follow, a description of the sampling design is first provided, followed by a discussion on the method of data collection for the study. Section Three discusses the model specification. The techniques of

data analysis are discussed in Section Four. Section Five advances justification for the technique of data analysis selected, Section Six explains the limitations of the data analysis technique. The final section provides a summary of the chapter.

3.1 Sampling Design

The population for this study is public companies quoted on the First and Second Tiers Securities Market of the Nigerian Stock Exchange (NSE). The list of companies quoted on NSE is provided in Appendix F. Companies listed on the First Tier securities market are expected to have a trading record of at least five years, not less than 25 percent shares in the hands of the public, and not less than 500 shareholders. Such companies are also expected to submit quarterly, half-yearly and yearly reports, and there is no limit to the amount of money that they can raise from the securities market.

The Second Tier Securities market was introduced in 1986 with less stringent conditions to accommodate more companies. The companies on the Second Tier Securities Market of NSE are mostly medium and small scale firms and are expected to have a track record of at least three years, not less than 25 percent shares in the hands of the public, not less than 100 shareholders and they cannot raise more than 20Milllion naira from the

securities market. As at December 2003, there were a total of 186 companies listed on the NSE. This comprises 170 companies listed on the First Tier Securities Market and 16 companies listed on the Second Tier Securities Market.

The sample of the study is selected from the public companies quoted on both the First and Second Tier Securities Market. Companies in the Second Tier Securities Market have been used because the study examines the effect of firm size on dividend policy. The sample selection is based on the criteria employed by previous studies on dividend policy such as Casey *et al* (1999:6 and 2000:9), and Adelegan (2003:40). The criteria are:

a. Firms with positive earnings throughout the period of the study, (1993-2002).

b. Finns with record of dividend payment during the period of the study.

c. Firms with records of cash flows during the period of the study.

d. Firms with record of capital spending during the period of the study.

e. Firms with record of current assets and current liabilities during the period of the study.

f. Firms with the financial and market information necessary to estimate the various pooled cross-sectional time series models available in the summarized annual reports contained in the Nigerian Stock Exchange

Fact Books for 1993 to 2002, Annual Report of Companies and Daily Lists of the NSE for the study period. These pieces of information are: Profit After Tax (PAT), Dividend per Share (DPS), Non-Cash Changes (NCC), Capital Spending (CS), Net Current Assets (NCA) sales (Turnover), Total Assets (TA) and Market Price per Share (MPS).

The only reason for dropping the zero-dividend payout firms is that relative performance evaluation of the dividend model is meaningless for such firms (Kumar and Lee, 2001:66).

On the basis of the criteria outlined above, a total number of 53 firms have been selected for this study. The list of the sample firms is provided in Appendix G.

The sample firms covered eighteen(18) sectors according to the NSE's classification, namely: agriculture, automobile and Tyre, banking, breweries, building materials, chemical and paints, conglomerates, computer and office equipment, construction, emerging markets/second tier securities, food beverages and tobacco, healthcare, industrial/domestic products, insurance, packaging, petroleum (marketing), publishing and Textiles.

3.2 Method of Data Collection

The study uses data mainly from the secondary source. This is because the estimation of the model in the study requires the use of pooled cross-section/time series data in the form of financial and market information. The source of data for the study are therefore the Nigerian Stock Exchange Fact Books for 1993 to 2002, Daily Official Lists of the NSE for the last day of trading in each of the years covered by the study, and the annual reports and accounts of the companies for all the years covered by the study.

3#3 Model Specification

The model in this study has been structured using the ordinary least squares (OLS) method. The model used two separate dependent variables, dividend payment represented by dividend yield (DYD) and dividend change (CD). The model has five principal explanatory variables - current earnings (Eit), Preceding year dividend per share [DlVi(t-l)], cash flow (CF), investment (INV) and net current assets (NCA); and three dummy variables - growth (Dl), firm size (D2) and industry classification (D3).

The three dummy variables were introduced separately into the base model. Thus the model has four linear regression equations for both dividend payment and dividend-change dependent variables. The equations are given below:

3.3.1 Model with dividend payment as dependent variable

Dividend payment in the equations is represented by dividend yield (DYD) and deals with the explanation of variations in the payment of dividend. The equations are stated as follows:

$$DYD = {}^{a}o + \text{<}i\ Ejt + a_2\ DIVi\ (t\text{-}l) + a_3\ CF + a_4\ INV + a_5 NCA + eit \quad \_i$$

$$DYD = a\ o + a,\ E\ jt + a_2\ DIVi\ (t\text{-}l) + a_3\ CF + a_4\ INV + a_5 NCA + D1 + eit \quad ...2$$

$$DYD = a\ o + a,\ Ejt + a_2\ DIVi\ (t\text{-}l) + a_3\ CF + a_4\ INV + a_5 NCA + {}_{D}2 + eit \quad ..3$$

$$DYD = {}^{a}o + ai\ Ejt + a_2\ DIVi\ (t\text{-}l) + a_3\ CF + a_4\ INV + a_5 NCA + D3 + eit \quad ...4$$

3.3.2 Model with dividend change (CD) as dependent variable

This model examines the determinants of changes in the level of dividend payments. The equations of the model are stated as follows

$$CD = P\,o + P\,1\,Eit + P_2\,DIVi\,(t\text{-}1) + (3_3\,CF + p_4\,INV + p_5NCA + eit \quad \ldots i$$

$$CD = Po + P\,iBit + P_2\,DIVi\,(t\text{-}l) + p_3\,CF + p_4\,INV + p_5NCA_{+\,D1} + e\,it \quad \ldots_2$$

$$CD = Po + P\,i\,E\,i\,t + p_2\,DIVi\,(t\text{-}1) + p_3\,CF + p_4\,INV + p_5NCA + {}_{D2} + eit\ldots 3$$

$$CD = P\,o + P\,i\,Ejt + p_2\,DIVi\,(t\text{-}l) + p_3\,CF + p_4\,INV + p_5NCA + {}_{D3} + {}_{e}it \ldots 4$$

Where:

DYD		Dividend yield, representing dividend payment
a o, P o	=	Intercept term
Eit	=	Current Earnings
DlVi(t-l)	=	Preceding Year Dividend
CF	=	Cash Flow
INV	=	Investment

NCA = Net Current Assets

CD = Dividend Change

Dl = Dummy 1, representing Growth

D2 = Dummy 2, representing firm size

D3 Dummy 3, representing industry classification

eit = Error term

The first two explanatory variables current earnings (Eit) and preceding year dividend DlVi(t-l) are the same variables captured by the Lintner (1956) model. The robustness of these variables in explaining both dividend changes and dividend payment has been proved by several empirical and survey researches such as Fama and Babiak (1968:1132), Rao and Sarma (1971:25), Oyejide (1976:179), Hagerman and Huefher (1980:39), Jose and Stevens (1989:651) and Adelegan (2000:5). This justifies the inclusion of the two variables in the model of the study. In all the studies, the relationships between dividend policy and current

earnings and previous year dividend were found to be significant. This study therefore expects the same relationship to hold.

Several studies suggest that cash flow and earnings convey different information. These studies include Gombola and Ketz (1983:105) and Bowen *et al* (1986:713). Some authors have provided evidence supporting a strong link between cash flows and dividend payment. These include Bar-Yosef and Huffman (1986:47) and Bar-Yosef and Venezia (1991:197). Adelegan (2003:35) argues that cash flow is superior to earnings in explaining dividend policy for two reasons. First, managers may manipulate earnings to maximise their bonus awards to side track restrictive debt covenant violations (Healey, 1985:85). Secondly, cash flow is a more direct measure of liquidity and liquidity is expected to be a contributing factor in establishing dividend policy. Lawson and Stark (1981:40), Lee (1983:13) and Lawson and Moeller (1996:715) have argued that management should consider firms' liquidity in setting dividend policy since the payment of dividend involves cash flow. This is further justified by the argument in modern finance theory that an organisation's decision to reduce, increase or maintain dividend

partly reflects its liquidity position (Pandey, 1999:776). Consequently, this study expects cash flow to be significantly related to dividend policy.

The model introduces investment as one of the explanatory variables. It is represented by the capital spending per share. The ratio represents the percentage of total cash flow required for investment needs. As the ratio increases, firms might reduce dividend payout and satisfy investment requirements using internally generated funds first. This is based on the pecking order theory (Myers, 1984:575) and the stakeholder theory (Rozeff, 1982:249), and the peculiarities of the Nigerian companies. Soyode (1978:26) and Oyejide (1987:87) documented that most Nigerian companies rely on retained earnings for financing their activities because of the illusion of costlessness usually associated with retained earnings. Cornell and Shapiro (1987:5), Prezas (1988:551) and Ravid (1988:87) further suggest that a firm's dividend policy could be influenced by the interactions between investment and financing decisions. Lower dividend payment means that cash is retained for internal use, rather than for dividend payments, because firms prefer cheaper internal financing to external financing. The relationship between

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investment and dividend policy could be negative implying that an increase in investment opportunities will result in a decrease in dividend payment and vice-versa. This assumption is supported by the findings of Whited (1992:1425) and Vogt (1994:3). La Porter, *et al* (2000:8) however, argue that the relationship between investment and dividend policy will depend on the quality of shareholder's protection provided by the country where the firms operate. In countries with good shareholder's protection, firms with better investment opportunities should have lower dividend payout ratios. On the other hand, in countries with poor shareholder protection, firms with better investment opportunities might payout more to maintain reputations since the option of going back to the capital market is always valuable.

The net current asset variable has been introduced as an explanatory variable that is peculiar to Nigeria and other developing economies with emerging capital equity markets. According to Ramcharran (2001:4) a special feature of countries with emerging capital markets is that governments play a major role in the dividend-making decision process. Armed with the belief that creditors need protection

from unscrupulous firms, governments have identified a number of ways they can ensure that the interests of creditors are not jeopardised. In Nigeria, Section 381 of the Companies and Allied Matters Act (1990) has clearly prohibited negativity of net current assets before or after the declaration and payment of dividend. Net current assets should therefore constitute an important variable in modelling the dividend policy of corporate firms in Nigeria. Accordingly, the study expects a significant relationship between dividend policy and net current assets.

The study relaxes the assumption of homogeneity of dividend policy across firms in order to incorporate three dummy variables into the model. The dummy variables are growth, firm size and industrial classification.

Different firms follow different dividend policies depending on their investment opportunities. Generally speaking, firms can be classified into two groups on the basis of their growth prospects. These are mature firms (low growth firms) and growth firms (high growth firms). Mature (low growth) firms generally have few investment opportunities and are therefore expected to follow a high dividend payout policy. Conversely,

growth (high growth) firms usually have ample investment opportunities. Hence they are expected to follow a low dividend payout policy (Pandey, 1999:775). La Porta *et al* (2000:6) however, argue that shareholders' preference for dividend will depend on the quality of protection given to them by a country's legal system. Where shareholders are well protected, a low dividend payment would be accepted from high growth firms and a high dividend payment from low growth (mature) firms. In contrast, if shareholder's protection is poor, such a relationship between payouts and growth would not be expected since shareholders may try to get what they can, however little, immediately. This study expects a positive relationship between dividend policy and growth for mature firms. Dummy 1 is therefore one for mature firms and zero for growth firms.

The model in this study also allows studying whether firm size influences its dividend decision. In this regard, firms are classified into large and small depending on their total assets in relation to the median assets for the cross section of firms. In line with Casey, *et al* (1999:33) proposition, this study expects a positive relationship between dividend policy and firm size for large firms. This is because size is expected to

have influence on growth and liquidity. Large firms are expected to have a low growth rate and large cash flows. Hence dividend payment would be high. Conversely, small firms are expected to have high growth rate and low cash flows. The dividend payment for these firms would therefore be low. Dummy 2 is thus one for large firms and zero for small firms.

Lastly, the model of the study allows studying whether industry classification affects a firm's dividend policy. To measure the industry effects, all the industries selected in the study constitute dummy variables so that each industry dummy variable assumes the value of one for itself and zero for other industries.

3.3.1 Measurement of Variables

The Model in this study focuses on two types of relationship. First it examines the relationship between dividend payment represented by Dividend Yield (DYD), Current Earnings (Eit), Preceding Year Dividend Per Share [DIVi (t-1)], Cash Flow (CF), Investment (INV) and Net

Current Assets (NCA) as explanatory variables. The model further introduces three dummy variables - Growth (Dl) Firm size (D2) and Industry classification (D3) separately into the model. Second it examines the relationship between Dividend Changes (CD) and Current Earnings (Eit,) Preceding Year Dividend Per Share [DIVi (t-1)], Cash Flow (CF), Investment (INV), Net Current Assets (NA) and the three dummy variables separately introduced into the model. The measurement of the variables is discussed below:

1. Dividend Payment (DYD): Dividend yield, which is measured by the current year, Dividend Per Share (DPS) divided by current Market Price per Share (MPS). DPS is equal to current year cash dividend paid to common shareholders.
2. Current Earnings (Eit): Earnings per share measured by the profit after tax divided by the current market value of equity.
3. Preceding Year Dividend Per Share (DlVi(t-l)): Dividend lag (DL) measured by previous year cash dividend paid to common shareholders divided by the preceding year market value of equity.

4. Cash Flow (CF): Cash flow per share, measured by profit after tax (PAT) plus Non-Cash Charges (NCC) less Preferred Dividends (PD) divided by current market value of equity, where NCC includes depreciation and amortisation.

5. Investment (1NV): Capital spending per share (CSP), measured by current year capital spending divided by current market value of equity.

6. Net Current Assets (NCA): Net current assets per share, measured by total current assets less total liabilities divided by the current market value of equity.

7. Growth (Dl): Average Growth In Net Sales (AGS), measured by the average of the aggregate current sales less previous sales divided by previous sales, that is:

$$/\ ,\ \frac{(\text{current Sales - Previous SalesVprevious Sales}}{\mathbf{ST}\qquad\qquad\mathbf{n}}\qquad \mathbf{n}$$

Where:

n = number of years (10 years)

t = period of the study (1993 - 2000)

Current Sales = Turnover for the year under consideration

Previous Sales = Turnover preceding the year under consideration

A Median Growth in Sales (MGS) is calculated after adding the Average Growth in Sales (AGS) for the cross section of firms. The idea is that different firms might be at different stages of maturity and growth that determine their dividend policies. Firms with AGS higher than MGS are classified as growth (high growth) firms while firms with AGS lower than MGS are classified as low growth (mature) firms.

8. Size (D2): Total assets (TA), measured by the aggregate of fixed and current assets. A median asset is calculated for the cross-section of firms. A firm is classified as "large" if its total assets measure is larger than the median asset, for the cross-section of firms. A firm is classified as "small" if its total assets measure is below the median for the cross-section of firms.

9. Industry Classification (D3): Industry classification based on the Nigerian Stock Exchange (NSE) classification. Each industry constitutes a variable (otherwise known as industry dummy variable).

10. Dividend Changes (CD): Dividend yield lag measured by current year dividend yield less preceding year dividend yield.

A market value deflator is used in the regression model because it avoids historical cost bias that is inherent in other deflators such as book value of equity and total assets. Adelegan (2003:35) argues that there is a wide belief that dividend policy is driven by market performance. Christie (1987:231), Kothari (1992:173), Alford *et al* (1993:183), Ali and Pope (1995:19) and Charitou and Vafeas (1998:49) lend support to the argument that a firm's dividend policy should be measured on the basis of its market value.

3.4 Technique of Data Analysis

This study employs the univariate and multivariate techniques for the purpose of data analysis.

The univariate tools of analysis used are percentages, ratios, mean and median. These tools have been used for the purpose of measuring the variables captured by the model of the study.

The study also employs a multiple regression model that has been structured using the ordinary least squares (OLS) method. The model uses two separate independent variables- dividend payment and dividend changes, and five explanatory variables-current earnings, preceding year dividend per share, cash flow, investment and net current assets. Three non metric variables have also been introduced into the model in the form of dummies. The dummy variables are growth, firm size and industry classification. The primary goal of the multiple regression model in this study is to examine empirically the extent to which the predictor variables in this research explain the observed dividend behaviour of corporate firms in Nigeria. More specifically, the multiple regression model seeks

to determine the aggregate impact of the five predictor variables on the dividend behavioural pattern of corporate firms in Nigeria. Furthermore, the model has been used to determine the relative contribution of the five predictor variables in estimating or predicting the two separate dependent variables, and whether the three dummy variables have significant influence on the divided policy decisions of Nigerian corporate firms.

The regression equations developed and tested in this study are restated below:

3.4.1 Model with Dividend Payment as Dependent Variable

Dividend level in the equations is represented by dividend yield (DYD) and deals with the explanation of variations in the level of dividend. The equations are stated as follows:

$_{D}YD = a\ o + a,\ Ejt + a_2\ DIVi\ (t\text{-}l) + a_3\ CF + a_4 INV + a_5 NCA + eit$ ….j

$_{D}YD = a\ o + ai\ Eit + a_2\ DIVi\ (t\text{-}l) + a_3\ CF + a_4\ INV + a_5 NCA + D1 + eit$ ...2

$DYD = a\ o + a,\ E,t + a_2\ DIVi\ (t\text{-}l) + a_3\ CF + a_4\ INV + a_5 NCA + {}_{D}2 + eit$ ..3

DYD = [a] o + ai Ejt + a_2 DIVi (t-l)+a_3 CF + a_4 INV +a_5NCA+ D3 + eit ...4

3.4.2 Model with Dividend Change (CD) as Dependent Variable

This model examines the determinants of changes in dividend payments. The equations of the model are stated as follows:

CD = P o + P i Ejt + p_2 DIVi (t-l)+ p_3 CF + |3_4 INV + (3_5NCA + eit ,j

CD = Po +P i Eit +P_2 DIVi (t-l)+ p_3 CF + p_4 INV +p_5NCA+ Dl + eit ...2

$_C$D = Po + P » E i t + p_2 DIVi (t-l)+ p_3 CF + p_4 INV + p_5NCA + D2 + eit ...3

CD = P o + P i Eit + P_2 DIVi (t-l)+ p_3 CF + p_4 INV + p_5NCA + $_D$3 + eit ...4

Where:

DYD = Dividend yield representing dividend payment

a o, P o = Intercept term

Eit = Current Earnings

DlVi(t-l) = Preceding Year Dividend

CF = Cash Flow

INV = Investment

NCA = Net Current Assets

CD = Dividend Change

Dl = Dummy 1, representing Growth

D2 = Dummy 2, representing firm size

D3 = Dummy 3, representing industry classification

eit = Error term

The model is estimated using the regression coefficients of the five independent variables and their level of significance. The significance of the overall model, that is, the coefficient of determination (R^2) is tested using the test statistic F in order to determine the predictive ability of the model. The t value is also used to determine the significance of the five independent and three dummy variables included in the model of this study. These tests provide the basis for explaining and predicting the dividend behaviour of corporate firms in Nigeria. In addition, the tests provide the basis for generalising the conclusions of the study.

35 Justification of Technique of data Analysis

Today, multiple regression analysis has proved to be a powerful and popular tool used in developing business and economic models for

the purpose of analyzing the relationship between variables (McClave and Benson, 1988:556). The use of the multiple regression variate in this study therefore falls in line with popular practice. Thus it would be observed that most of the previous studies on dividend policy beginning from Lintner's seminal study to the work of Adelegan (2003:32) utilized the multiple regression variate in explaining and/or predicting the relationship between certain predictor variables and dividend policy.

The multiple regression analysis has also been adopted because it enables the calculation of values of several coefficients so as to show the relative contribution of the several independent variables in determining the dependent variable. This satisfies one of the primary objectives of the study.

Another rationale for the adoption of multiple regression analysis is because of its use in calculating multiple correlation coefficient as an indicator of the extent to which all the predictor variables jointly predict or explain the dependent variable. This also addresses the basic objective of the study.

The final rationale for the use of the multiple regression variate is the fact that a number of pre-packaged computer programs exist today for the purpose of multivariate data analysis. In addition, most of the statistical packages designed for mainframe computers (such as SPSS, SAS BMBP and E-Views) are also now available for personal computer units.

3.6 Limitations of the Technique of data Analysis

As earlier stated, this study employs a multiple regression model for the purpose of data analysis. There are several problems which analysts must be aware of when constructing a multiple regression model. The following limitations of multiple regression analysis have been highlighted by McClave and Benson (1988:623).

3.6.1 Parameter Estimability

The estimation of the parameters of the regression line requires a wide range of data. This is because the parameter of the line cannot be estimated with data that are concentrated around a single predictor

variable. Independent variables must be observed at a sufficient number of levels to permit estimation of the model parameters. Thus a computer program may refuse to fit a model because of inestimable parameters.

In order to overcome the limitation, the present study has chosen a period of ten years. The long period covered by this study should make it possible for the long-term trend to emerge clearly and remedy this limitation.

3.6.2 Multicolinearity

Two or more independent variables may be correlated with each other. The result of this is usually an overlap of information. When highly correlated independent variables are present in a regression model, the result may be confusing because of the seemingly contradictory values that may be revealed by the least squares estimates represented by the "t" value and the "F" value.

In order to assess multicolinearity, this study first examines the correlation matrix for independent variables for the purpose of checking

the presence of high correlation (generally those of .90 and above) among the independent variables.

As a follow up to this step, the study employs the two more commonly advanced measures of assessing multicolinearity. These are (1) the tolerance value and (2) the variance inflation factor (VIF) which is the reciprocal of the tolerance value. These measures involve regressing each independent variable against the other independent variables. Tolerance represents the amount of variability of the selected independent variable not explained by the other independent variables (that is, one minus the coefficient of determination, R^2). As a general rule, a very small tolerance value (the common cut off threshold of which is .10) and a large VIF values (usually values above 10) denote multicolinearity. These advanced measures were considered desirable because the absence of high correlation among the independent variables in the correlation matrix does not guarantee absence of multicolinearity. The correlation matrix only shows simple correlation between two variables.

3.6.3 Correlated Error

Another limitation of the multiple regression model arises from the fact that the data are frequently time series. That is, the values of both dependent and independent variables are observed sequentially over a period of time. The observation tends to be correlated over time, which in turn often causes the prediction errors of the regression model to be correlated. Thus the assumption of independent errors is violated, and the model test and prediction intervals are no longer valid.

In order to avoid the problem associated with time series data, this study utilises pooled cross-section and time series data for the purpose of measuring the dependent and independent variables.

3.6.4 Extrapolation

Multiple regression model may be accurate for predicting the dependent variable when the independent variables are in the range of experimentation (interpolation). The use of the models outside that range (extrapolation) is usually a dangerous practice. This tends to affect the

generalisability of the findings of a research. To warrant generalisability, the number of observations must not fall below five.

A sample size of 53 firms is considered large enough to satisfy the above criterion.

3.7 Summary

This Chapter has discussed the research method adopted by the study for the purpose of data collection, analysis and interpretation. They are quantitative and descriptive research method. More specifically, the study adopts the correlational and the cross-section of time series description. The choice is informed by the major objective of the study which is to establish a basis for explaining and predicting the dividend payment as well as dividend changes of firms in Nigeria across industries and over a period of time. In order to empirically explain and predict the relationship between dividend payment and dividend changes on the one hand, and current profit, preceding year dividend, cash flow, investment and net assets on the other hand, the study uses a sample of 53 firms from the public companies quoted on the First and Second Tier Securities

Market of the Nigerian Stock Exchange (NSE). The selection is based on certain criteria employed by previous studies on dividend policy and covers 18 sectors according to NSE classification.

The data used for the study were obtained mainly from secondary sources and were in the form of pooled cross-section of time series data. The data are published records such as the NSE Fact Books and Daily Official Lists, and the Annual Reports and Accounts of Companies.

For the purpose of data analysis, the multiple regression model has been adopted. The empirical model in the study has been developed by integrating the approaches used in Lintner's and RozefP s studies. The model uses two separate dependent variables-dividend payment and dividend changes and five predictor variables-current profit, preceding year dividend, cash flow, investment and net assets. Three dummy variables-growth, firm size and industry classification are also introduced into the model in order to determine their effects on the dividend policy of firms in Nigeria.

The chapter that follows would be devoted to the presentation, analysis and interpretation of the pooled cross-section of time-series data collected for the purpose of this study.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.0 Introduction

This chapter deals with the presentation, analysis and interpretation of the pooled cross section of time series data collected and processed for the purpose of testing empirically, the model developed in this study.

Multiple regression has been used to estimate the relation between the independent factors (earnings, previous dividends, cash flow, investment and net current assets) and the two dividend policy factors which represent the dependent variables (dividend payment and dividend changes). For each dividend policy factor, the technique of least squares has been used to estimate the regression coefficient in the models of the form:

$$DYD = do + cii\ E_{£}t + <x_2\ DIVi\ (t\text{-}l) + a_3\ CF + a_4 INV + a_5 NCA + eit$$

$$CD = p\ o + (3\ i\ Ejt + P_2\ DIVi\ (t\text{-}l) + p_3\ CF + p_4\ INV + p_5 NCA + eit$$

Three Dummy variables (Dl, D2, and D3) representing growth, firm size and industry classification have also been added each at a time to the base models.

The results are presented in four sections: Section one presents some basic statistics from the sample of firms used in the study. Section two presents the regression results for the cross-section of firms using the level

of dividend payment (DYD) as well as dividend changes (CD) as dependent variables. Section three discusses the policy implication of the findings. Section four summarises the discussion in the Chapter.

4.1. Basic Sample Statistics

The sample descriptive statistics is first presented in Table 4.1, the correlation matrix is presented in Table 4.2, while the tolerance and variance inflation factor are presented in Table 4.3.

4.1.1 Sample Descriptive Statistics

Table 4.1 shows the mean, standard deviation, minimum and maximum values of the variables used in the study. The full results are contained in Appendix A.

Table 4.1 Sample Descriptive Statistics (1993 - 2002 data)

Variables*	Mean	Std Dev	Minimum	Maximum	Observations
E	0.2438	0.5455	0.0039	7.7804	512
DlVi(t-l)	0.0671	0.0912	0.0000	1.0000	507
CF	0.4812	0.6764	0.0052	7.9669	508
1NV	0.3453	0.4684	0.0000	5.1633	508
NCA	0.4710	0.8745	-3.5050	8.8522	513
Dl	0.5249	0.4999	0.0000	1.0000	522
D2	0.5323	0.4994	0.0000	1.0000	526
D3	0.0189	0.1364	0.0000	1.0000	527
DYD	0.0926	0.1897	0.0000	3.0000	513
CI)	0.0065	0.2133	-2.6296	2.0000	500

Source: Econometric - views Regression Results using Data from Field Survey

**E = Earnings, DIVi (t-1) = Previous Dividend, CF = Cash flow, INV = investment, NCA = Net Current Assets, Dl = Dummy 1 (growth), D2 = Dummy 2, (firm size), D3 = Dummy 3 (Industrial classification), DYD = Dividend yield (Dividend payment), CD = Dividend change (Change in Dividend Yield).*

Table 4.1 indicates that, on average, the rate of dividend payment is about 9.3 percent, while earnings, previous dividend, cash flow, investment, and net current assets have a mean of about 24.4, 6.7, 48.1, 34.5 and 47.1 percent respectively. Net current assets variable has the highest standard deviation signifying its low contribution to the dividend policy model, while previous dividend has the lowest standard deviation which indicates its significant contribution to the model.

The level of dividend payout per share during the study period lies between 0 and 300 percent while the rate of dividend change lies between -263 and 200 percent. The current earnings per share for the cross-section of firms lies between 0.39 and 778 percent, previous payout per share lies between 0 and 100 percent, cash flow per share lies between 0.52 and 796

percent, investment per share lies between 0 and 516 percent while net current assets per share lies between -351 and 885 percent.

4.1.2 Correlation Matrix

Table 4.2 presents the correlation matrix for the sample observations. The full result are contained in Appendix B.

Table 4.2 Correlation Matrix for the Sample Observations

Variable *	E	DlVi (t-1)	CF	INV	NCA	Dl	D2	D3	DYD	CD
E	1.0000									
DlVi(t-l)	0.7174	1.0000								
CF	0.7935	0.5375	1.0000							
INV	0.5193	0.3092	0.7055	1.0000						
NCA	0.2670	0.3441	0.3218	0.0680	1.0000					
Dl	0.1058	0.1000	0.1213	0.1150	-0.0202	1.0000				
D2	0.1083	0.0704	-0.0503	-0.0218	-0.1273	0.0930	1.0000			
D3	-0.0217	0.0047	-0.0283	0.0389	-0.1025	0.1365	0.1365	1.0000		
DYD	0.7479	0.5967	0.6450	0.3478	0.2629	0.1346	0.0738	0.0439	1.0000	
CD	0.3163	0.0716	0.3187	0.2077	0.1212	0.0010	0.0026	-0.0034	0.5478	1.0000

Source: Econometric - views Regression Results using Data obtained from Field Survey

* For an explanation of the variables, see Table 4.1.

Table 4.2 indicates that there is a positive relationship between dividend payment (DYD) and earnings, investment, previous dividend, cash flow and net current assets. It also indicates a positive relationship between dividend change and earnings, previous dividend, investment, cash flow and

net current assets. The correlations between the independent variables are not highly significant. They range between 79 percent (Earnings and cash flow) to about 7 percent (Investment and net current assets).

4.1.3 Analysis of Tolerance and Variance Inflation Factors.

Notwithstanding the indication of non multicollinearity in the correlation matrix, two advanced measures of assessing multicollineasity are further employed. These are the tolerance value and the variance inflation factor (VIF).

A summary of the results is presented in Table 4.3. The full results are contained in Appendix C.

Table 4.3 Tolerance Value and Variance Inflation Factor (VIF)

Variable *	Tolerance	VIF
E	0.2500	4.0000
DlVi(t-l)	0.4633	2.1584
CF	0.2312	4.3253
INV	0.4718	2.1195
NCA	0.6031	1.2452

Source: Econometric - views Regression Results using Data obtained from Field Survey

* *For an explanation of the variables see Table 4.1.*

The variance inflation factors were consistently smaller than ten indicating complete absence of multicollinearity (eg. Neter, *et al;* 1996 and Cassey, *et al;* 1999). This shows the appropriateness of fitting the model of the study with the five independent variables. In addition, the tolerance

values are consistently smaller than 0.7. This further substantiates the fact that there is complete absence of multicollinearity (see Tobachnick and Fidell, 1996:115).

4.2 The Determinants of Dividend Policy of Corporate Firms in Nigeria

The regression results dealing with the determinants of dividend policy of corporate firms in Nigeria are presented under two sub-sections. Sub-section one deals with the determinants of dividend payment while subsection two deals with the determinants of dividend changes based on the cross-section of sample firms used in the study.

4.2.1 Determinants of Dividend Payment.

The study uses five independent variables for the purpose of explaining and predicting dividend payment (DYD). The five explanatory variables are earnings, previous dividend, cash flow, investment and net current assets. The study hypothesises a significant relationship between the explanatory variables and dividend payment (DYD) which is one of the two dividend policy factors used in the study. The rationale for such expectation has been explained in Chapter Three. The relationship between dividend payment and the five explanatory variables is predicated on the assumption of homogeneity across firms, signifying constant response coefficient.

Empirical studies have shown that the response coefficient is affected by firm size, growth level and industry classification. Hence the assumption of homogeneity is relaxed in order to capture these factors. The three factors are introduced into the model as dummies one at a time. The study predicts that the five independent variables are better predictors of dividend payment for mature (low growth) firms, and large firms. In addition, the study predicts that the ability of the *five* variables to explain the dividend payment of the sample firms will depend on the industry to which the firms belong. The regression results are presented in Table 4.4. The full results are contained in Appendix D.

Table 4.4 Determinants of Dividend payment from Cross-Section OLS Regression Results"

Variable[11]	EQ1	LQ2	IQ3	Agriculture SQ4ai	Automobile IQ4aii	Banking EQ4aiii
Intercept	0.0156	0.0057	0.0099	0.0158	0.0158	0.0117
	(1.9223)	(0.5908)	(0.9498)	(1.9369)	(1.9360)	(1.3812)
E	0.1837	0.1839	0.1799	0.1835	0.1837	0.1778
	(9.1531)***	(9.1840)***	(8.7602)***	(9.1311)***	(9.1432)***	(8.7137)***
DIVi (t-1)	0.2477	0.2413	0.2494	0.2479	0.2479	0.2533
	(2.7936)***	(2.7265) ***	(2.8116)***	(2.7934) ***	(2.7935) ***	(2.5581)***
CF	0.0760	0.0747	0.0784	0.0762	0.0760	0.0788
	(4.5008)***	(4.4299) ***	(4.5823) ***	(4.5042) ***	(4.4971) ***	(4.6420) ***
INV	-0.0623	-0.0633	-0.0622	-0.0622	-0.0625	-0.0632
	(-3.6501)***	(-3.7145) ***	(-3.6428)***	(-3.6356) ***	(-3.6532) ***	(-3.7027) ***
NCA	0.0012	0.0020	0.0017	0.0010	0.0011	0.0002
	(0.1729)	(0.2829)	(0.2481)	(0.1422)	(0.1632)	(0.0343)
Dl		0.0206				
		(1.8526)**				
D2			0.0101			
			(0.8813)			
D3				-0.0109	-0.0102	0.0209
				(-0.2741)	(-0.2443)	(1.4896)
R^2	0.5871	0.5899	0.5877	0.5871	0.5871	0.5889
AdjR^2	0.5829	0.5850	0.5827	0.5821	0.5821	0.5839
F-stat	141.32***	118.91***	117.84***	117.56***	117.55***	118.43***
Durbin-Watson	1.8064	1.8122	1.8069	1.8068	1.8039	1.8099

Table 4.4 Continued

Variable	Breweries EQ4aiv	Building Materials IQ4av	Chemicals £Q4avi	Computers £Q4avii	Conglomerates SQ4aviii	Construction £Q4aix
Intercept	0.0156	0.0162	0.1531	0.0153	0.0192	0.01600
	(1.8891)	(1.9746)	(1.8742)	(1.8898)	(2.3089)	(0.9540)
E	0.1837	0.1844	0.1835	0.1839	0.1861	0.1836
	(9.1384)***	(9.1555)***	(9.1315)***	(9.1601)***	(9.2808) ***	(9.1419)***
DlVi(t-l)	0.2477	0.2448	0.2481	0.2427	0.2408	0.2493
	(2.7904) ***	(2.7517)***	(2.7954) ***	(2.7315)***	(2.7205) ***	(2.8063) ***
CF	0.0760	0.0757	0.0761	0.0784	0.0752	0.0755
	(4.4939) ***	(4.4756) ***	(4.5026) ***	(4.5826) ***	(4.4605) ***	(4.4518)***
INV	-0.0623	0.0628	-0.0662	-0.0661	-0.0640	-0.0615
	(-3.6389) ***	(-3.6681) ***	(-3.6322) ***	(-3.7543) ***	(-3.7547)***	(-3.5692) ***
NCA	0.0012	0.0012	0.0011	0.0012	0.0020	0.0009
	(0.1731)	(0.1768)	(0.1551)	(0.1738)	(0.2833)	(0.1328)
Dl						
D2						
D3	0.0005	-0.0190	0.0117	0.0379	-0.0395	-0.0111
	(-0.0170)	(-0.4766)	(0.2795)	(0.8820)	(-1.9128)**	-0.3778
R^2	0.05871	0.5873	0.5871	0.5877	0.5901	0.5872
AdjR	0.5821	0.5823	0.5821	0.5827	0.5851	0.5822
F-stat	117.53***	117.62***	117.56***	117.84***	119.01***	117.59***
Durbin-Watson	1.8064	1.8062	1.8071	1.8055	1.8171	1.8082

Table 4.4 Continued

Variable	Emerging Mkts EQ4ax	Food/Bev &Tob EQ4axi	Healthcare IQ4axii	Industrial/Dom EQ4axiii	Insurance LQ4axiv	Packaging £Q4axv
Intercept	0.0162	0.0157	0.0154	0.0166	0.0167	0.0160
	(1.9711)	(1.8607)	(1.8680)	(2.0371)	(2.0197)	(1.9702)
E	0.1839	0.1836	0.1835	0.1785	0.1829	0.1813
	(9.1550)***	(9.1189)	(9.1068)***	(8.6833)***	(9.0935)***	(8.9667)***
DlVi(t-l)	0.2476	0.2481	0.2479	0.2502	0.2405	0.2461
	(2.7901) ***	(2.7794)***	(2.7923)***	(2.8221)***	(2.6925)***	(2.7752)***
CF	0.0761	0.0761	0.0762	0.0815	0.0759	0.0785
	(4.5028) ***	(4.4840)***	(4.4747)***	(4.6438)***	(4.4893)***	(4.5924)***
INV	-0.0629	-0.0624	-0.0623	-0.0637	-0.0602	-0.0622
	(-3.6712) ***	(-3.6132)***	(-3.6473)***	(-3.7208)***	(-3.4739)***	(-3.6451)***
NCA	0.0011	0.0012	0.0012	0.0002	0.0022	0.0014
	(0.1570)	(0.1671)	(0.1640)	(0.0261)	(0.3027)	(0.1971)
Dl						
D2						
D3	-0.0133	-0.0007	0.0028	-0.0280	-0.0118	-0.0279
	(-0.4579)	(-0.0377)	(0.0996)	(-1.1461)	(-0.6596)	(-0.9456)
R^	0.5872	0.5871	0.5871	0.5882	0.5875	0.5878
Adj R^2	0.5823	0.5821	0.5821	0.5832	0.5825	0.5828
F-stat	117.61	117.53***	117.53***	118.06***	117.72***	117.89***
Durbin-Watson	1.8078	1.8066	1.8063	1.8082	1.8011	1.8063

Table 4.4 Continued

Variable	Petroleum IQ4axvi	Printing/Pub. £Q4axvii	Textiles SQ4axviii
Intercept	0.0121	0.0135	0.0161
	(1.4563)	(1.6497)	(1.9736)
E	0.1847	0.1843	0.1834
	(9.2212)***	(9.1998)***	(9.1305)***
DIVi (t-1)	0.2403	0.2392	0.2507
	(2.7142)***	(2.6985)***	(2.8221)***
CF	0.0754	0.0761	0.0757
	(4.4760)***	(4.5120)***	(4.4760)***
INV	-0.0608	-0.0608	-0.0616
	(-3.5642)***	(-3.5656)***	(-3.6001)***
NCA	0.0024	0.0013	0.0008
	(0.3453)	(0.1929)	(0.1134)
Dl			
1)2			
D3	0.0387	0.0477	-0.0257
	(1.8495)*	(1.6869)*	(-0.6459)
$\mathbf{R^2}$	0.5899	0.5894	0.5874
$AdjR^2$	0.5549	0.5845	0.5824
F-stat	118.91***	118.68***	117.70***
Durbin-Watson	1.8147	1.8094	1.8103

Source: Econometric - Views Regression Results using Data obtained from Field Survey

[a]t - values are in parenthesis. ***, **, and * indicate that values are sig. at 1%, 5% and 10% respectively.

XQJ ~ Base model, HQ2 model with Dl (firm growth), l'Q3 = model with 1)2 (firm size), LQai - axviii = model with D3 (industrial classification, ai = Agriculture, aii = Automobile and Tyre, aiii = Banking, aiv = Breweries, av = Building Materials, avi = Chemicals and Paints, avii = Computers and Office Equipment, aviii = Conglomerates, aix = Construction, ax = Emerging Markets/second-tier Securities, axi = Food, Beverages and Tobacco, axii = Healthcare, axiii = Industrial/Domestic Products, axiv = Insurance, axv = Packaging, axvi = Petroleum Marketing, axvii = Printing and Publishing, axviii = Textiles.

In able 4.4 regression equation (1) relates dividend payment (DYD) to earnings (E), previous dividend [DIVi (t-1)], cash flow (CF), investment (INV) and net current assets (NCA). The estimated regression relationship for the dividend payment (DYD) model is:

DYD = 0.0156 + 0.1837 (E) + 0.2477 [DIVi (t-l)]+0.0760 (CF) - 0.0623 (INV)+0.0012(NCA).

The equation indicates that three independent variables have significant positive effect on dividend payment, while one has a significant negative effect. The variables with significant positive effect are earnings, previous dividend and cash flow. An increase in any of these variables is expected to increase dividend payment. The variable having a negative effect on dividend payment in the regression equation is investment. This signifies that an increase in this variable leads to a decrease in dividend payment. However, net current assets, does not have statistically significant effect on dividend payment. The Durbin Watson statistic indicates no serial correlation.

The results provide evidence for the rejection of null hypotheses (2), (3), (4) and (5), and the acceptance of null hypothesis (6) of the study. Hypotheses (2), (3), (4), (5) and (6) state that there is no relationship between dividend policy and earnings, previous dividend, cash flow, investment and net current assets of Nigerian firms. The statistical evidence available in the study reveals that the hypothesised relationship in the null form is only true in the case of net current assets.

The results reveal that in line with Lintner's (1956) findings, the dividend behaviour of the sample firms can be explained by earnings and previous year dividend. The robustness of these two variables in explaining

dividend payout level as revealed by previous studies has thus been confirmed by the present study.

The study also provides support to the argument in modem finance theory that firm's decision to reduce, increase or maintain divided payment partly reflects their liquidity position (Pandey, 1999:776). The results in this study indicate that the sample firms in Nigeria increase or reduce dividend payment as the firms' cash flow increases or decreases. The results confirm the findings of Bar-Yosef and Huffman (1986:47), Bar-Yosef and Venezia (1991:197) and Adelegan (2003:35).

In line with the findings of Whited (1992:1425) Vogt (1994:4) and Casey and Anderson (1999:8), the results of this study reveal a negative relationship between investment and dividend payment. This implies that the sample firms reduce dividend payment when there is an increase in investment opportunities. As Soyode (1978:26) and Oyejide (1987:57) indicate, most of the companies in Nigeria rely on retained earnings for financing their investment because of the illusion of costlessness usually associated with retained earnings. The study also provides support to Myer's (1984:575) Pecking Order Theory and Rozeffs (1982:249) Stakeholder Theory.

Contrary to the study's proposition, no statistically significant relationship has been established between net current assets and dividend payment of the sample firms in Nigeria. These results suggest that there is

no evidence to show that the sample firms have complied with the provision of Section 381 of the Companies and Allied Matters Act (1990) as amended. The Section requires firms to pay dividend only when the fair value of the firm's net current assets remains positive after the payment of such dividend.

The t-values in the regression results (see Appendix D) indicate that the variable with the greatest influence on dividend payment of the sample firms is earnings with a value of 9.1531 followed closely by cash flow with a value of 4.4008, then previous dividend with a value of 2.7936 and investment with a value of-3.6501 all significant at 1 percent.

A striking revelation from these results is that cash flow is a stronger determinant of dividend payment than previous dividend. This finding seems to contradict the findings of some previous researchers such as Benartzi *et al* (1997:1032) who assert that Lintner's model with current earnings and previous dividend as explanatory variables remains the best description of dividend setting process available. Other empirical studies that support the assertion are Baker and Powell (1999:22, 2000:20) and Baker and Powell (2001:19). The problem with these studies is that most of them base their conclusion on Survey rather than on empirical evidence. In addition, the studies fail to distinguish between dividend payment and dividend changes as dividend policy factors. Since Lintner's (1956) model employs dividend change as dividend policy factor, it may not be correct to

conclude that there is contradiction in the two results. The present results simply indicate the superiority of cash flow to previous dividend in a dividend policy model that uses dividend payment as a dividend policy factor.

Another striking revelation from the results is that in line with Whited's (1992) proposition, investment is a highly significant determinant of the dividend payment of the sample firms. Although there are indications to this effect in previous studies, this study provides pioneering empirical evidence in support of that fact.

The results reveal that there is no statistically significant relationship between net current assets and dividend payment. This implies that the variable is not important in making dividend decision.

In terms of the fitness of the model in this study, the regression equation characteristics of dividend payment indicate an adjusted coefficient of determination of 58 percent. This means that 58 percent of the variations in dividend payment are explained by the combined influence of the statistically significant explanatory variables used in the model. This provides evidence that the model is well fitted. This result addresses null hypothesis (1) of the study, which states that current earnings, previous dividends, cash flow, investment and net current assets do not have significant aggregate impact on the dividend policy of corporate firms in Nigeria. Based on the research findings, the hypothesis has been rejected

and evidence established that the five independent variables have significant aggregate impact on dividend payment (one of the dividend policy factors) of the sample finns. This is because the F-statistic indicates a value of 141.32 and is found to be significant at 1 percent.

As already indicated, the study relaxes the assumption of homogeneity inbuilt in the result of Equation (1). Consequently, three dummy variables are introduced at separate times into the base model. The dummy variables are growth (Dl) firm size (D2) and industry classification (D3 i-xviii). The dummy variables are used to investigate the effect of level of growth, firm's size and industry classification on the dividend policy of corporate firms in Nigeria. The results are presented in Equations (2), (3) and (4ai - xviii) of Table 4.4. The equations used dividend payment as the dividend policy factor.

In equation (2), the regression results for growth (Dl) are presented. The study expects a significant positive relationship between dividend payment and growth for mature firms. This is because mature firms generally have few investment opportunities and are therefore expected to follow a high dividend payout policy. High growth firms on the other hand are expected to follow a low dividend payout policy since they have ample investment opportunities (see Ramcharran, 2001:2; Rafael, *et al,* 2000:11; and Pandey, 1999:775). The results indicate a positive and statistically significant relationship (at 5 percent) between mature firms and dividend

payment. This implies that in accordance with the expectation of the study, mature (or low growth) firms usually pay higher dividend. The results also indicate a slight increase in the value of the adjusted coefficient of determination from 58 percent in equation 1 to about 59 percent in equation 2. This signifies that the addition of dummy 1 to the base model has improved the fitness of the model in terms of its explanatory and predictive ability. The F-statistic indicates that the adjusted R" is significant at 1 percent confidence level. Accordingly, the results have provided evidence that growth rate is a significant determinant of firms' dividend payment.

Equation 3 shows the regression results for firm size (D2). The study expects a significant positive relationship between the dividend policy factors and large size firms. Large size firms are expected to have a low growth rate and large cash flows. Hence dividend payout level will be high. Small size firms, on the other hand, are expected to have high growth rate and low cash flows, and consequently, the dividend payout would be low. The results indicate a positive relationship between large size firms and dividend payout level. However, the coefficient of D2 is not significant. This implies that there is a positive but statistically insignificant relationship between firm size and the dividend payout of the sample firms. The results further show that the adjusted coefficient of determination has remained the same as it is in the base model. The addition of D2 to the base model has not

improved the explanatory and predictive power of the model. The F-statistic however, indicates that the adjusted R^2 is still significant at 1 percent.

The regression results for industrial classification (D3) are also presented in Equations 4ai through 4axviii. The addition of D3 to the base model is meant to investigate the effect of industrial classification on the firm's dividend payout level. The results indicate that industrial classification has significant influence on only three industries, Conglomerates, Petroleum Marketing and Printing and Publishing. Conglomerates industry has a negative coefficient and has been found to be significant at 5 percent. Petroleum Marketing and Printing and Publishing have positive coefficients and have been found to be significant at 10 percent. The coefficients for the remaining 15 industries have not been found to be significant. The implication of these results is that the conglomerates industry with negative coefficient has certain peculiar features that have negative influence on its dividend payment. Thus a decision to increase dividend payment on the basis of the five explanatory variables will adversely affect the firms in this industry. In the case of the remaining two industries, that is, Petroleum Marketing and Printing and Publishing which have positive coefficients, the implication is that they have certain characteristics that have positive influence on their dividend payment decision. Firms in these two industries thus favour an increase in dividend payment based on the five explanatory variables. The peculiar features of

the industry are likely to include the growth rate and size of the firms in the industries. Most of the firms in conglomerates are high growth firms and relatively small in nature. Firms with these features generally have high investment opportunities and low cash flows. The dividend payment for these firms is thus expected to be low. A decision to increase dividend payment by these firms will affect them adversely. On the other hand, most of the firms in the Petroleum Marketing and Printing and Publishing industries are low growth firms and relatively large in size. These firms usually have low investment opportunities and high cash flows. A decision to increase dividend payment is expected to have favourable effect on these firms.

The overall fitness of the model has also remained unchanged. The adjusted coefficient of determination has remained at 58 percent and significant at 1 percent after the addition of the industry classification dummy (D3) to the base model. This implies that dummy variable D3 has not improved the predictive and explanatory ability of the model.

4.2.2 Determinants of Dividend Changes

In addition to dividend payment, the study also uses dividend change as a dividend policy factor. This criterion variable is expected to provide evidence as to whether the *fwe* predictor variables-current earnings, previous dividend, cash flow, investment and net current assets can be used

to predict or explain changes in the dividend payment of Nigerian firms from one year to another. The study hypothesises a significant relationship between dividend changes and the five predictor variables.

The assumption of homogeneity or constant response coefficient has also been relaxed in order to investigate the effect of the three dummy variables-growths, firm size and industry classification on dividend changes. The regression results are shown in table 4.5. The full results are contained in Appendix E

TABLE 4.5 Determinants of Dividend Change from Cross-Section OLS Regression Results"

Variable[D]	IQ1	EQ2	ZQ3	Agriculture LQ4bi	Automobiles £Q4bii	Banking Q4biii
Intercept	-0.0108	-0.0057	-0.0084	-0.0108	-0.0111	-0.0045
	(-0.8298)	(-0.3624)	(-0.4996)	(-0.8198)	(-0.8456	(-0.3296)
E	0.1665	0.1662	0.1681	0.1664	0.1665	0.1763
	(5.1569)***	(5.1424)***	(5.0873) ***	(5.1465)***	(5.1526)***	(5.3704)***
DlVi(t-l)	-0.7879	-0.7828	-0.7883	-0.7878	-0.7882	-0.7968
	(-5.4655) ***	(-5.4178)***	(-5.4628)***	(-5.4588)***	(-5.4619)***	(-5.5313)***
CF	0.0466	0.0474	0.0456	0.0467	0.0466	0.0420
	(1.7209)*	(1.7459)*	(1.6590)*	(1.7206)*	(1.7189)*	(1.5454)
INV	-0.0101	-0.0096	-0.0101	-0.0100	-0.0010	-0.0085
	(-0.3681)	(-0.3491)	(-0.3687)	(-0.3652)	(-0.3607)	(-0.3095)
NCA	0.0183	0.0178	0.0180	0.0182	0.0183	0.0199
	(1.6270)	(1.5818)	(1.5976)	(1.6082)	(1.6313)	(1.7704)*
Dl		-0.0109				
		(-0.6060)				
D2			-0.0044			
			(-0.2363)			
D3				-0.0044	0.0122	-0.0364
				(-0.0694)	(0.1833)	(-1.5838)
R^2	0.1643	0.1649	0.1644	0.1643	0.1644	0.1686
Adj R^J	0.1557	0.1546	0.1540	0.1540	0.1540	0.1583
F-slat	19 07***	15.93***	15.87***	15.86***	15.87***	16.36***
Durbin-Watson	2.7881	2.7899	2.7882	2.7881	2.7896	2.7894

Table 4.5 Continued

Variable	Breweries LQ4biv	Building Materials LQ4bv	Chemicals SQ4bvi	Computers LQ4bvii	Conglomerates IQ4bviii	Constructions IQ4bix
Intercept	-0.0117	-0.0109	-0.0112	-0.0110	-0.0104	-0.0118
	(-0.8797)	(-0.8167)	(-0.8539)	(-0.8442)	(-0.7764)	(-0.8961)
E	0.1661	0.1665	0.1664	0.1664	0.1668	0.1666
	(5.1358)***	(5.1353)***	(5.1474)***	(5.1472)***	(5.1495)***	(5.1570)***
DlVi(t-l)	-0.7873	-0.7879	-0.7876	-0.7892	-0.7887	-0.7924
	(-5.4561)***	(-5.4462)***	(-5.4580)***	(-5.4683)***	(-5.4609)***	(-5.4841)***
CF	0.0469	0.0466	0.0467	0.0484	0.0465	0.0481
	(1.7289)*	(1.7180)*	(1.7240)*	(1.7591)*	(1.7148)*	(1.7648)*
INV	-0.0094	-0.0101	-0.0098	-0.0127	-0.0103	-0.0122
	(-0.3430)	(-0.3669)	(-0.3568)	(-0.4506)	(-0.3742)	(-0.4423)
NCA	0.0182	0.0183	0.0181	0.0182	0.0183	0.0189
	(1.6165)	(1.6252)	(1.6056)	(1.6168)	(1,6303)	(1.6750)*
Dl						
D2						
D3	0.0160	0.0003	0.0197	0.0278	-0.0044	0.0270
	(0.3445)	(0.0046	(0.2790)	(0.3823)	(-0.1334)	(0.5576)
R^1	0.1645	0.1643	0.1644	0.1646	0.1643	0.1648
Adj R'	0.1542	0.1539	0.1541	0.1542	0.1540	0.1545
F-stat	15.88***	15.86***	15.88***	15.89***	15.86***	15.92***
Durbin-Watson	2.7882	2.7881	2.7883	2.7875	2.7879	2.7870

Table 4.5 Continued

Variable	Emerging SQ4bx	Food/Bcv &Tob EQ4bxi	Healthcare EQ4bxii	Industrial / Domestic LQ4bxiii	Insurance ZQ4bxiv	Packaging LQ4bxv
Intercept	-0.0112	-0.0135	-0.0118	-0.0105	-0.0095	-0.0105
	(-0.8412)	(-0.9913)	(-0.8867)	(-0.8016)	(-0.7093)	(-0.8021)
E	0. 1664	0.1679	0.1655	0.1651	0.1655	0.1645
	(5.1458)***	(5.1879)***	(5.1047)***	(4.9819)***	(5.1125)***	(5.0548)***
DlVi(t-l)	-0.7879	-0.7971	-0.7868	-0.7871	-0.7963	-0.7892
	(-5.4597)***	(-5.5040)***	(-5.4517)***	(-5.4524)***	(-5.4850)***	(-5.4697)***
CF	0.0466	0.0451	0.0479	0.0482	0.0465	0.0488
	(1.7173)*	(1.6571)*	(1.7536)*	(1.7076)*	(1.7162)*	(1.7781)*
INV	-0.0098	-0.0072	-0.0102	-0.0104	-0.0077	-0.0010
	(-0.3560)	(-0.2598)	(-0.3720)	(-0.3805)	(-0.2775)	(-0.3648)
NCA	0.0183	0.0192	0.0179	0.0180	0.0194	0.0184
	(1.6294)	(1.6962)	(1.5893)	(1.5861)	(1.6945)*	(1.6407)
Dl						
D2						
D3	0.0066	0.0206	0.0175	-0.0078	-0.0142	-0.0251
	(0.1429)	(0.7054)	(0.3827)	(-0.1991)	(-0.5181)	(-0.5180)
R^2	0.1643	0.1652	0.1646	0.1644	0.1648	0.1648
AdjR'	0.1540	0.1548	0.1542	0.1540	0.1544	0.1544
F-stat	15.86***	15.96***	15.89***	15.87***	15.91***	15.91***
Durbin-Watson	2.7880	2.7883	2.7882	2.7884	2.7886	2.7884

Table 4.5 Continued

Variable	Petroleum IQ4bxvi	Printing/Pub. IQ4bxvii	Textiles EQ4bxviii
Intercept	-0.0128	-0.0122	-0.0115
	(-0.9565)	(-0.9210)	(-0.8727)
E	0.1672	0.1669	0.1669
	(5.1721)* **	(5.1659)***	(5.1634)***
DlVi(t-l)	-0.7928	-0.7936	-0.7919
	(-5.4891)***	(-5.4920)***	(-5.4803)***
CF	0.0463	0.0467	0.0470
	(1.7067)*	(1.7216)*	(1.7347)*
INV	-0.0092	-0.0091	-0.0109
	(-0.3370)	(-0.3335)	(-0.3985)
NCA	0.0190	0.0184	0.0188
	(1.6817)*	(1.6349)	(1.6644)
Dl			
D2			
D3	0.0225	0.0300	0.0315
	0.6618	(0.6635)	(0.0495)
R'	0.1651	0.1651	0.1647
Adj R^2	0.1547	0.1547	0.1544
F-stat	15.95	15.95***	15.91
Durbin-Watson	2.7885	2.7882	2.7874

Source: Econometric - Views Regression Results using Data obtained from Field Survey

[a]t - values are in parenthesis. ***, **, and * indicate that values are sig. at 1%, 5% and 10% respectively

[h]*2JQ/ - Base model, XQ2~ model with Dl (firm growth), ZQ3 = model with D2 (firm size), LQhi - hxviii = model with D3 (industrial classification, hi = Agriculture, hii = Automobile and Tyre, biii = Banking ,biv = Breweries, bv - Building Materials ,bvi = Chemicals and Paints ,bvii = Computers and Office Equipment ,bviii = Conglomerates, bix = Construction, bx = Emerging Markets/second-tier Securities, bxi = Food, Beverages and Tobacco, bxii = Healthcare, bxiii - Industrial/Domestic Products, bxiv = Insurance, bxv = Packaging, bxvi = Petroleum Marketing, bxvii = Printing and Publishing, bxviii = Textiles.*

In Table 4.5, regression equation 1 relates Dividend Changes to Earnings (E), Previous Dividend [DIVi (t-1)], Cash Flow (CF), Investment

(INV) and Net Current Assets (NCA). The estimated regression relationship for the dividend changes (CD) model is:

CD = -0.0108 + 0.1665 (E) -0.7879 DIVi (t-1) + 0.0466 (CF) -0.0101 (INV) + 0.0183 (NCA).

The results indicate a significant positive relationship between dividend changes and earnings as well as cash flow, and a significant negative relationship between dividend changes and previous dividend. Investment has been found to be negatively related and net current assets positively related to dividend changes. However, the relationships for both of them were found to be statistically in- significant. The significant positive relationships between dividend changes and earnings as well as cash flow imply that an increase in current earnings and cash flow would lead to a positive change in dividend payment from one year to another. The significant negative relationship between dividend changes and previous dividend implies that a positive change in previous dividend from one year to another will not lead to an increase in dividend payment. In other words, firms usually follow a smoothed residual dividend policy. They are reluctant to increase dividend payment unless they are sure that the increase can be maintained. Firms do this because they believe that shareholders prefer a steady stream of dividend to a fluctuating dividend. These results are consistent with the results of previous studies (Lintner, 1956:79; Fama and

Babiak, 1968:1132; Brittain, 1964:272; Jose and Stevens, 1989:651; and Benartzi ef a/, 7997:1007).

The results also provide evidence for the rejection of null hypothesis (2), (3) and (4) and the acceptance of null hypotheses (5) and (6). The hypotheses predicted a significant relationship between earnings (hypothesis 2), previous dividend (hypothesis 3), cash flow (hypothesis 4), investment (hypothesis 5) and net current assets (hypothesis 6). The t-values of earnings and previous dividend are found to be significant at 1 percent while the t-value of cash flow is found to be significant at 10 percent.

The results show the robustness of Lintner's variables (current earnings and previous dividend) in explaining the dividend policy of the sample of firms in Nigeria.

More importantly, the results provide strong evidence that the sample of firms in Nigeria make dividend decisions in line with Lintner's partial adjustment model. The model indicates that changes in dividends over time do not correspond exactly with changes in earnings in the immediate period. This is because firms tend to make periodic partial adjustment in the yearly payout ratio in the direction of a long-run target ratio, rather than making dramatic changes in cash dividend paid.

The results also confirm the findings of Adelegan (2003:35) which indicate a significant positive relationship between dividend changes and cash flow, despite the differences in the definition of dividend adopted by

the two studies. While Adelegan (2003:35) defined dividend to include both cash and stock dividend, the present study defines dividend in terms of cash dividend paid to ordinary share- holders only.

However, the results do not provide support to the use of investment in explaining or predicting dividend changes. The investment coefficient has been found to be insignificant. The coefficient of net current assets has also been found to be insignificant implying that they are not important variables for explaining changes in the dividend payment of the sample of firms.

The t- values in the regression model show that the variable with the greatest influence on dividend changes is earnings with a value of 5.1569, significant at 1 percent confidence level. This is closely followed by previous dividend (-5.4655), also significant at 1 percent confidence level, and cash flow (1.720924), significant at 10 percent confidence level. As already explained, the sequence of the explanatory variables in relation to dividend changes only establishes the robustness of Lintner's model which uses current earnings and previous dividend as explanatory variables.

The model's adjusted coefficient of determination shows that only about 15.6 percent of the variations in dividend changes are explained by the combined influence of current earnings, previous dividend, cash flow, investment and net current assets. On the basis of the low adjusted R^2 value, the tendency is for one to conclude that the model is not well fitted in terms of the explanatory power. This conclusion is not tenable because it is not

unusual for the adjusted R" values which result from regression equation dealing with differences in variables (rather than level of variables) to be generally low. The reason for this has been provided by Keran and Riordan (1976:7), Oyejide (1976:179) and Adelegan (2003:35). According to these studies, when a change rather than level data are used, the variance to be explained is omitted by trend, leaving only the cyclical and random components. This reduces the adjusted R^2 value. The probability of the F-statistic provides further support to the above explanation. The F-statistic (19.07) has been found to be significant at 1 percent. This implies that even with the low adjusted R" value, the model is well fitted.

The results in Equation 2 through 4bi - bxviii indicate that none of the Dummy Variables-growth, firm size and industry classification-has significant impact on dividend changes.

Furthermore, the adjusted R" has remained within the range of 15.4 to 15.6 percent. This shows that the addition of the three dummy variables to the base model has not led to any improvement in the model. The F-statistic also remained consistently significant at 1 percent.

A comparison of the results in Tables 4.2 and 4.3 reveal the following. First, the two sets of results are similar in terms of the statistical significance of the estimated coefficients of three explanatory variables. These are earnings (E), previous dividend [DIVi (t-1)] and cash flow (CF). This confirms the robustress of the three variables in all the models. This

result is consistent with the findings of previous studies such as Lintner (1956:79), Oyejide (1976:179) and Adelegan (2003:35). Second, investment has only been found to be a significant explanatory variable in the dividend payment model and not in the dividend -change model. The two sets of results are not in any way contradictory. This is because previous studies have consistently found investment to be a significant explanatory variable in a dividend payment model only. The implication of the results therefore is that, while the sample firms consider investment as a significant factor in making dividend payment decision, it is not a significant factor in a decision to vary dividend payment from one year to another. Third, the two sets of results indicate that net current assets variable is consistently insignificant in determining the dividend policy of the sample firms. This suggests non-compliance compliance with the provisions of Section 381 of the Companies and Allied Matters Act (CAMA) 1990 as amended, by the sample firms. The series of negative net current asset values in the sample data further substantiates this fact. In the overall, the two sets of results have proved the robustness of the model of the study in terms of its predictive and explanatory power. This implies that they it is significantly useful in predicting and explaining the dividend policy of the sample of corporate firms in Nigeria.

4.3 Policy Implications of the Findings

There has never been a crucial moment in the Nigerian history when direct foreign investment is considered more critical than the current period. The number of shares traded on the floor of the Nigerian Stock Exchange has increased as a result of the privatisation programme vigorously pursued by the Federal government. More so, the search for core investors in privatized companies has been intensified. Dividend policy no doubt influences the decision of both local and foreign investors. Studies on dividend policy are therefore of clear policy relevance, especially for a country that is interested in rapid and sustained economic growth.

Possible public implications exist regarding the use of the model developed in this study. First, the utility of the model in explaining and predicting the dividend behaviour of the sample firms has been clearly established. Given the fact that shareholders in practice usually prefer firms with a stable and predictable dividend policy, the model in this study could be used to predict a firm's dividend payment as well as the stability or changes in dividend payment overtime. This could easily be done using information available in a firm's financial forecast with regards to its earnings, previous dividend, cash flow, investment and net current assets. The category of shareholders that usually favour regular cash dividend payments and who may wish to predict their cash inflow would also find the

model of this study quite useful. This category includes small shareholders, retirees and pensioners and some institutional investors.

The results of this study have provided insight into the predictor variables that have important impact in explaining the variation in dividend payment and dividend changes of corporate firms in Nigeria. From the perspective of the Board of Directors (BODs) of corporate firms, these findings should assist in establishing a dividend policy that can be acceptable to the various stakeholders in the firms. The results of the study indicate that earnings variable is the most important variable that can be used to explain dividend payment as well as dividend changes. The relationship between the earnings variable and the two dividend policy factors has remained consistently positive. The important features of this independent variable are that it is both short-run and long-run in its scope, and can be manipulated by corporate management. These features thus suggest that dividend policy can be established and manipulated to some extent by the board of directors of corporate firms to suit the interest of the various stakeholders. The results also indicate that cash flow is an important explanatory variable in a dividend payment as well as dividend-change model. The values of the coefficients in both models have remained consistently positive. Cash flow largely depends on earnings and other variables that are within the control of corporate management such as depreciation. In addition, the cash flow variable is short-run in its scope.

These characteristics also suggest the possibility of establishing a dividend policy that can be manipulated, to some extent, and that the results of change in the dividend policy can be noted relatively early. This provides a basis for planning a firm's operating, investment and financing activities.

Previous dividend has also consistently appeared to be an important variable that can be used to explain the dividend behaviour of corporate firms in Nigeria. The relationship between previous dividend and dividend payment, as well as dividend changes is however not consistent. While there is a positive relationship between previous dividend and dividend payment, the relationship between previous dividend and dividend change is negative. The explanation for this is that firms take into consideration an increase or decrease in previous year dividend in deciding whether to increase or reduce dividend payment. However, changes in dividend payment over the years are negatively associated with previous dividend. Thus a positive change in previous dividend will not necessarily be accompanied by a positive change in dividend payment over a number of years. These results demonstrate the importance of smoothed residual dividend policy. Corporate management can maintain a stable dividend payment so that the equity portions of new capital expenditure are financed internally. At the same time, the management can maintain both the target dividend payout and target capital structure over time.

In accordance with whited's (1992:1425) findings, the results of the study also indicate a significant inverse relationship between investment and dividend payment. The results also confirm the findings of Soyode (1978:26) and Oyejide (1987:3476) that most Nigerian companies rely on retained earnings for the purpose of financing their investment opportunities because of the illusion of costlessness usually associated with retained earnings.

This finding suggests that management is expected to consider whether:

1. The available investment opportunities will yield positive Net Present Value (NPV)
2. The investments would yield returns higher than that which shareholders could themselves earn by investing in investments of equal risk. The overriding objective should be to maximise shareholders' value.

From the perspective of creditors who need protection against excessive dividend payments, the model in this study should assist in checking compliance with the insolvency rule which is contained in the Companies and Allied Matters Acts (CAMA) 1990. The rule provides that corporations should only pay dividend when there are adequate reasons to believe that the fair value of the corporation's net current assets will remain positive after the payment of dividend. The results of this study indicate that

net current asset is not a significant factor in determining either dividend payment or dividend changes. The implication of this result is that the study could not find evidence of compliance with the insolvency rule by the sample firms in this study. In addition, the methodology introduced in this study can easily be adapted to assess dividend policy reaction to legislative Acts related to areas other than insolvency rule, such as tax reform and regulation or deregulation of certain industries. The results further suggest the possibility of formulating and enforcing standard on dividend payments by the accounting professional bodies. The standard is not only desirable but imperative given the latitude currently granted to directors of companies to make dividend decision. It will be easier for accounting professional bodies than the government, to assess compliance with the rules that have been enacted to limit the discretion of directors where such rules are complimented by accounting standards. This is because accountants are responsible for auditing the end of year financial statements of corporate firms.

The results of the study further show the importance of incorporating firm-specific factors into a dividend policy model. More specifically, the results indicate that a firm's dividend payment is significantly affected by its level of growth. The ability of a firm to establish dividend policy using the variables in this study will thus depend on whether the firm is a high growth or mature firm. The implication of this finding is that in enacting laws or

formulating standard on dividend payment, consideration needs be given to firm-specific factors, especially a firm's level of growth.

4.4 Summary

In this Chapter, the regression results on the determinants of dividend policy of corporate firms in Nigeria have been presented and analysed for the cross-section of sample firms used in the study. The analyses have been carried out in three sections.

In section one, some basic sample statistics are presented and analysed. The basic statistics are the sample descriptive statistics, the correlation matrix and tolerance value as well as variance inflation factor. The correlation matrix and the tolerance value and variance inflation factor indicate complete absence of multicollinearity. Thus the appropriateness of fitting the model of the study using earnings, previous dividend, cash flow, investment and net current assets as explanatory variables has been established.

In section two, the regression results dealing with the determinants of dividend policy of corporate firms in Nigeria are presented and analysed on the basis of the cross-section of sample firms used in the study. Two dividend policy factors have been used - dividend payment and dividend changes. The analysis has been divided into two sub-sections. Sub-section one discusses the utility of the five independent variables in explaining and

predicting the dividend payment of firms. Sub-section two uses dividend change as a dividend policy factor in carrying out the same kind of analysis. Three dummy variables representing growth, firm size and industry classification have been added each at a time to the model with dividend payment and dividend changes as criterion variables.

The results reveal that three independent variables: earnings, previous dividend and cash flow are consistently significant in explaining and predicting dividend changes as well as the dividend payment of the sample firms used in the study. This has provided evidence on the robustness of the three variables in the model. The study also reveals that investment as an independent variable is only significant in explaining and predicting dividend payment. It has been found to be insignificant in the dividend - change model. The results consistently indicate that the net current assets variable is neither significant in a dividend-change nor dividend payment model. The results further indicate that a firm's growth rate is a significant variable in the dividend payment model. It was however found to be insignificant in the dividend -change model. Firm's size has been found to be an insignificant non metric variable in both the dividend payment and dividend-change model.

After adding the industry classification dummy variable to the base models, the results only provide a modest support for an industry-related dividend effect. From the 18 industries considered, only three reacted to the

use of the five explanatory variables in determining the dividend payment of the sample firms. These industries are conglomerates, petroleum marketing and printing and publishing. However, none of the 18 industries show any reaction to the use of the five predictor variables in determining dividend changes.

The results have in several respects confirmed the findings of previous studies such as Lintner (1956:79), Oyejide (1976:272), Whited (1992:1425) and Adelegan (2003:35).

The chapter that follows presents the summary, conclusions and policy recommendations of the study.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This Chapter provides a summary, conclusions and policy recommendations of the study. The Chapter is divided into three sections. Section one provides the summary, Section two discusses the conclusions and Section three highlights the policy recommendations of the study.

5.1 Summary

This study has developed a parsimonious multiple regression model for the purpose of explaining and predicting empirically, the dividend behavioural pattern of corporate firms in Nigeria. Using the confirmatory specification approach to model development, the study estimates the relationship between five explanatory variables-current earnings, previous dividends, cash flow, investment and net current assets, and two dividend policy factors-dividend payment and dividend changes by means of the least squares techniques. Three non metric (dummy) variables have also been added separately to the base models. These variables are growth, firm size and industry classification.

The study hypothesised a significant relationship between the five explanatory as well as the dummy variables and the two dividend policy factors.

The study is predicated on the premise that firms' dividend behaviour is dynamic and continuously affected by firm-specific, industry-specific and economic factors such as firm size, industry classification and economic policy changes. Dividend behavioural models must therefore be dynamic and capable of capturing those factors that are peculiar to a particular period and environment. Several empirical works lend support to this argument. They include Ang (1987:55), Simons (1994:577), Frankfurter and Wood (1997:16), Charitou and Vafeas (1998:225) and Adelegan (2003:35).

The findings of the research are based on the pooled cross-section of time series data collected for the period 1993 to 2002 from a sample of 53 firms. The sample firms covered 18 sectors based on the Nigerian Stock Exchange classification.

The results of the study reveal that the five predictor variables-current earnings, previous dividend, cash flow, investment and net current assets-have significant aggregate impact (at 1 percent level) on dividend policy of the sample firms as represented by the two dividend policy factors used in the study- dividend payment and dividend changes.

The study has documented a significant positive relationship between the two dividend policy factors and current earnings as well as cash flow of the sample firms.

The results also reveal a significant positive relationship between dividend payment and previous dividends of the sample firms. The results however, show a significant inverse relationship between dividend changes and the previous dividends of the firms.

Similarly, the results reveal a significant inverse relationship between dividend payment and investment. The relationship between dividend changes and investment has however been found to be insignificant.

In both the model with dividend payment and dividend changes as criterion variables, net current assets reveal a positive but insignificant relationship with the dividend policy of the sample firms.

After adding the three dummy variables to the base model at separate times, the results indicate that a firm's growth rate is only a significant factor in a dividend payment model and not in a dividend-change model. Firms' size has been found to be an insignificant non metric variable in both the dividend payment and dividend-change model. The industry classification variable only provides a modest support for an industry-related dividend effect. Out of the 18 industries used in the study, only three (conglomerates, petroleum marketing and printing and publishing) reacted to the use of the five predictor variables in determining the dividend payment

of the sample firms. None of the industries show any reaction to the use of the *fwe* predictor variables in determining dividend changes.

As a whole, the results reveal that three independent variables-earnings, previous dividend and cash flow-are consistently significant in explaining and predicting dividend changes as well as the dividend payment of the sample firms used in the study. This has proved the robustness of the variables in the dividend payment as well as dividend change model. These results have confirmed in several respects the findings of Lintner (1956:79), Rozeff (1982:249) and similar previous studies.

5.2 Conclusions

Based on the findings of the research, the study concludes as follows.

First, the study has provided both empirical as well as statistical evidence on the utility of the five independent variables-current earnings, previous dividend, cash flow investment and net current assets in explaining and predicting dividend payment as well as dividend changes of the sample firms. The results show that the five variables have a significant aggregate impact (at 1 percent) on the dividend policy of the firms.

Second, the study has confirmed the robustness of current earnings and previous dividend identified by Lintner (1956) as important variables for explaining both dividend changes and dividend payments of corporate firms in Nigeria within the period of the study.

Third, the study has established the importance of separating dividend payment from dividend changes in the operationalisation of the concept of dividend policy. While some variables such as current earnings, previous dividend and cash flow are found to be consistently significant in both the dividend payment and dividend-change model, investment has only been found to be a significant variable in the dividend payment model. Furthermore, the ranking of the variables in terms of their superiority has proved to be different. The dividend payment model indicates that current earnings variable is the most important variable, followed closely by cash flow, then previous dividend and investment in that order. The dividend change model, on the other hand, indicates that current earnings variable is the most significant variable followed by previous dividend and then cash flow. Investment has not been found to be significant. These variations show the importance of separating dividend payment and dividend changes in a dividend policy model.

Despite the difference in the operationalisation of the cash flow variable, the present study confirms the findings of Adelegan (2003:35). Both studies have found cash flow to be positive and statistically significant. A major breakthrough in the research however, is the discovery that cash flow is a superior variable over pervious dividend in a dividend payment model and not in a dividend-change model.

Fifth, there have been attempts in the literature and survey studies to

explain and predict dividend policy in Nigeria using the investment variable. However, the attempts have only stopped at the level of conceptualization. The current study represents a pioneering attempt at operationahsing and testing empirically the investment variable.

Sixth, the study also represents a pioneering attempt at conceptualizing and operationahsing the insolvency rule as a predictor rather than non metric variable in a dividend policy model. Previous studies have only succeeded in capturing legislative acts that relate to dividend policy in the form of dummy variables in the dividend policy model. The results of the present study have thus brought out the possibility of incorporating legal rules in a dividend policy model.

Seventh, the results of the study also indicate the desirability as well as the possibility of formulating and enforcing an accounting standard on dividend.

Finally, the study has demonstrated the importance of growth level in the modelling of dividend policy of corporate firms. The results of this study should guide policy makers as well as accounting standard setters in formulating rules or standard on dividend policy that would be capable of satisfying the interest of the major coalition members of a firm.

5.3 Recommendations

The recommendations of this study have been directed at six different parties who either have a direct or indirect influence on a firm's dividend decision. These parties are the firms' boards of directors, the shareholders of firms, the firms' creditors, the government, accounting professional bodies and future researchers.

5.3.1 The Boards of Directors of Firms

The study has indicated three factors-earnings, cash flow and previous dividend as being consistently relevant to firms dividend decision. On the basis of this revelation, the following recommendations are being made to firms' boards of directors.

5.3.1.1 The Need to Maintain a Steady Increase in Earnings and Cash Flow of Firms

The boards of directors of firms should strive to maintain a steady increase in earnings and cash flow. This is because the study indicates that the two variables have significant positive relationship with dividend payment as well as dividend changes. There are several ways of maintaining a steady increase in earnings. These include the adoption of aggressive sales strategies through intensive advertisement and sales promotion, the adoption of various cost reduction techniques and profit smoothing. In order to

maintain a steady cash flow, boards of directors of firms should intensify efforts in the collection of debts arising from credit sales or loans; adopt appropriate accounting policy on depreciation such as the reducing balance method for the purpose of reducing depreciation charge and delay, where possible in the remittance of tax to government. To the extent that both earnings and cash flow have short-term features and could be manipulated, the board of directors should consider using the variables not only for the purpose of maintaining steady increase in the variables, but also making dividend decision that will satisfy the interest of the three major coalition members of the firms, that is, the firm (itself), the shareholders and the firms' creditors. This is essential for the purpose of ensuring corporate survival and growth.

5.3.1.2 The Need to Maintain Stable Dividend Payment

The boards of directors of firms should adopt a stable dividend policy by maintaining a reasonably steady increase in dividend rate. A reasonably steady increase in dividend rate implies that boards of directors should not increase the dividend rate unless they are convinced that such increase can be sustained overtime. Similarly, dividend cut or reduction should be avoided except where it becomes absolutely necessary. Even then, adequate explanation must be provided to convince the stakeholders that the reduction is for strategic reasons and not cash flow or other problems. This

recommendation stems from the findings of the study which indicate a significant positive relationship between previous dividend and dividend payment and a significantly negative relationship between previous dividends and dividend changes. This underscores the importance of dividend stability.

5.3.1.3 The Need for Financing Investment through Retained Earnings

The study also indicates a significantly negative relationship between investment and dividend payment. From the perspective of the boards of directors, this finding underscores the importance of retained earnings as an internal source of finance. Accordingly, this study recommends that boards of directors should retain earnings as much as possible, without prejudice to stable dividend payment, where viable opportunities exist. However, in doing so, boards of directors must ensure that such investments are capable of producing higher returns than shareholders could themselves earn by investing in investments with equal risk. Similarly, the level of growth of the firm should be considered. The results of the study reveal that mature firms have the tendency to distribute a large percentage of their earnings to shareholders thereby retaining a low percentage of the earnings. Growth firms, on the other hand, have the tendency to retain a higher percentage of their earnings and to distribute a low percentage. Retaining earnings as an

internal source of finance will thus be more useful to the growth firms.

5.3.2 The Shareholders of Firms

Both the existing and potential shareholders of corporate firms in Nigeria will find the result of this study useful in the following ways.

5.3.2.1 Dividend Prediction

There is a unanimous agreement in the literature on the fact that shareholders prefer a predictable dividend policy to an unpredictable one. The model in this study will serve as a tool for use in the prediction of dividend changes as well as dividend payments. Previous dividend, cash flow and investment are important factors in firms' dividend decision. To the extent that these factors are measurable, the study recommends that existing shareholders who may wish to predict their cash flow or potential shareholders who may wish to assess a firm's ability to pay regular cash dividend should utilize the model in this study for that purpose.

5.3.2.2 Dividend Explanation

In addition to dividend prediction, shareholders may be interested in determining the factors that are usually considered by corporate firms in making dividend decisions. The model in this study has adequately provided such explanation.

The results in this study show that the decision by firms to pay dividend is guided principally by their earnings, previous dividends, cash flow and investment. Similarly, the decision by firms to vary dividend payment from year to year is guided principally by their earnings, previous dividend and cash flow. Shareholders should therefore utilize the findings of this study in making decision to buy or sell the shares of a firm.

5.3.3 The Firms' Creditors and Enforcement of the Insolvency Rule

The firms' creditors who usually need protection against excessive dividend payment should make a case for the enforcement of the insolvency rule contained in Section 381 of the Companies and Allied Matters Act (1990) as amended. The results of the study reveal that net current assets variable (a measure of the insolvency rule) is as an insignificant factor in the dividend decision of firms. This implies non compliance with the insolvency rule as further corroborated by the series of negative net asset values in the raw data. The enforcement of this rule is necessary in order to create confidence in the minds of the creditors concerning firms' ability to pay their debts as and when due.

5.3.4 **The Government**

Governments in different parts of the world have directly or indirectly influenced the dividend decision of firms. Even in the United States where the economy is relatively free from government intervention, government through its legal system has entrenched some rules that have given minority shareholders the powers to force companies to disgorge cash dividend. The overall aim is to boost private sector activities to enable it serve as engine of economic growth. It line with this discussion, the study offers the following suggestions to the government in Nigeria.

5.3.4.1 Encouragement of Internal Financing

The results of the study indicate that most of the companies in Nigeria rely on retained earnings for the purpose of financing their investment opportunities. Accordingly, the study recommends that government should reduce capital gain tax in order to encourage both growth and mature firms to retain some portion of their earnings for the purpose of maintaining their liquidity position. This is important in a period of inflation which has almost become a pemianent feature of the Nigerian economy. In particular, matured firms that have no internal growth opportunities should retain part of their earnings and put them to strategic use for the long-term vitality and survival of the firms. A good example of the strategies is to invest the surplus cash in medium-term securities. This provides the firms with flexibility in a period

of serious cash squeeze, such that dividend payment will not have to be cut in the event of the availability of growth opportunities.

5.3.4.2 Enactment and Enforcement of Legal Rules on Dividend

Government should enact and ensure enforcement of legal rules in relation to dividend. These rules should be aimed at protecting shareholders who usually desire regular cash dividend, and encouraging private sector participation in the economy. As already noted, the results of the study indicate the possibility of adapting the model of the study for the purpose of assessing dividend policy reaction to, as well as, compliance with different legislative acts. The outcome of this study using the insolvency rule should serve as a litmus test for assessing compliance with legal rules by corporate firms in Nigeria.

5.3.5 The Accounting Professional Bodies and Standard on Dividend

Professional accounting bodies in Nigeria should as a matter of necessity initiate the process of setting standard on dividend policy. The standard needs not be too restrictive but must aim at protecting the interest of the major coalition members of the firm. The standard should combine some of the basic finance principles on dividend policy as well as the existing legal rules. This suggestion is informed by the fact that professional accounting bodies are responsible for auditing the financial statements of

companies in Nigeria. It will thus be easy for the professional bodies to monitor and assess compliance with the standard especially where auditors are specifically required to report on the extent of compliance or non-compliance with such standard.

5.3.6 Future Researchers

The findings of this study and the generalisation of the conclusions of the study have been limited by some factors which future researchers should attempt to overcome.

5.3.6.1 Survivorship Bias.

In order to overcome the survivorship bias suffered by the present study, it is recommended that future research in this area should test the application of the models on "unhealthy" firms (that is firms with erratic record of earnings and dividend payment). Alternatively, the sample could contain a mixture of "healthy" and "unhealthy" firms. Either of these two approaches will help confirm or invalidate the strength of the model in explaining and predicting the dividend behaviour of corporate firms in Nigeria.

5.3.6.2 The Homogeneity Assumption

The study also recommends the extension of the empirical methodology used in the present study to allow for heterogeneity. The model in the study should be used to examine the dividend behaviour of corporate firms at the individual firm level.

5.3.6.3 The Modelling Approach

It will be an interesting development to continue with the line pursued in the present study by using the sequential search rather than the confirmatory specification approach. This suggestion is informed by the fact that possibility exists that the model of the study omitted several other important variables that could be used to determine the dividend behaviour of corporate firms in Nigeria. The perceived variables include operating and financing leverage, the nature and number of shareholders and total distributable earnings. The sequential search approach allows the estimation of the regression approach with a set of variables and then selectively adding or deleting variables until some overall criterion measure is achieved. This approach provides an objective method for selecting variables that maximize the prediction with the smallest number of variables employed. This approach may provide a better means of maintaining a parsimonious model.

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APPENDIX A

Sample Description Statistics

	CD	INV	D1	D2	D3	DIVi (t-1)
Mean	0.006522	0.345265	0.524904	0.532319	0.018939	0.067103
Median	0.004300	0.170700	1 .000000	1 .000000	0.000000	0.050000
Maximum	2.000000	5.163300	1 .000000	1 .000000	1 .000000	1 .000000
Minimum	-2.629600	0.000000	0.000000	0.000000	0.000000	0.000000
Std. Dev.	0.213264	0.468436	0.499858	0.499429	0.136440	0.091157
Skewness	-2.731488	4.199804	-0.099645	-0.129425	7.051592	6.690378
Kurtosis	84.58205	32.22227	1.008013	1.014850	50.72306	60.67496
Jarque-Bera	139280.7	19568.46	87.16806	87.83817	54480.58	74052.53
Probability	0.000000	0.000000	0.000000	0.. 000000	0.000000	0.000000
Observations	500	508	522	526	528	507

APPENDIX A Continued

	DYD	E	CF	NCA
Mean	0.092620	0.243811	0.481208	0.470996
Median	0.062500	0.152850	0.282800	0.304200
Maximum	3.000000	7.780400	7. 66900	8.852200
Minimum	0.000000	0.003900	0.005200	-3.505000
Std. Dev.	0.189693	0.545451	0.676398	0.874519
Skewness	10.19020	11 . 13066	5.728624	3.566464
Kurtosis	133.4673	146.1889	49.22979	27.96252
Jarquc-Bcra	372717.7	447970.8	48015.78	14406.88
Probability	0.000000	0.000000	0.000000	0.000000
Observations	513	512	508	513

Appendix B

Correlation Matrix

	CD	CF	Dl	D2	D3	DIVi (t-1)
CD	1 .000000	0.318658	0.001025	0.002620	-0.003394	0.071551
CF	0.318658	1 .000000	0.121339	-0.050292	-0.028303	0.537457
Dl	0.001025	0.121339	1 .000000	0.092980	0.136465	0.100009
D2	0.002620	-0.050292	0.092980	1 .000000	0.136465	0.070419
D3	-0.003394	-0.028303	0.136465	0.136465	1 .000000	0.004656
DIVi (t-1)	0.071551	0.537457	0.100009	0.070419	0.004656	1 .000000
DYD	0.547778	0.645008	0.134570	0.073775	-0.043870	0.596668
E	0.316303	0.793502	0.105791	0.108279	-0.021710	0.717433
INV	0.207698	0.705513	0.115002	-0.021805	0.038894	0.309219
NCA	0.121160	0.321846	-0.020242	-0.127288	-0.102487	0.344086

Appendix B Continued

	DYD	E	INV	NCA
CD	0.547778	0.316303	0.207698	0.121160
CF	0.645008	0.793502	0.705513	0.321846
Dl	0.134570	0.105791	0.115002	-0.020242
D2	0.073775	0.108279	-0.021805	-0.127288
D3	-0.043870	-0.021710	0.038894	-0.102487
DIVi (t-1)	0.596668	0.717433	0.309219	0.344086
DYD	1 .000000	0.747900	0.347790	0.262899
E	0.747900	1.000000	0.519280	0.266992
INV	0.347790	0.519280	1 .000000	0.068001
NCA	0.262899	0.266992	0.068001	1 .000000

Appendix C

Regression Result for the Computation of the Tolerance Value and Variance Inflation Factor (VIF)

Dependent Variables is E

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.129802	0.017133	-7.576113	0.0000
CF	0.507658	0.030080	16.87688	0.0000
DlVi(t-l)	2.504026	0.163120	15.35082	0.0000
INV	-0.055112	0.038041	-1.448738	0.1480
NCA	-0.044827	0.015498	-2.892435	0.0040
R-squared	0.749967	Mean dependent var		0.242720
Adjusted R-squared	0.747959	S.D. dependent var		0.549425
S.E. of regression	0.275832	Akaike info criterion		-2.566039
Sum squared resid	37.88937	Schwarz criterion		-2.524085
Log likelihood	-63.36727	F-statistic		373.4342
Durbin- Watson stat	1.558168	Prob{F-statistic)		0.000000

Appendix C Continued
Dependent Variable is DIVi (t-l)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.036581	0.003753	9.747672	0.0000
CF	-0.016329	0.008504	-1.920049	0.0554
E	0.128273	0.008356	15.35082	0.0000
INV	-0.003550	0.008627	-0.411524	0.6809
NCA	0.017817	0.003446	5.170550	0.0000
R-squared	0.536701	Mean dependent var		0.066967
Adjusted R-squared	0.532980	S.D. dependent var		0.091354
S.E. of regression	0.062430	Akaike info criterion		-5.537530
Sum squared resid	1 .940954	Schwarz criterion		-5.495576
Log likelihood	683.9627	F-statistic		144.2251
Durbin- Watson stat	1.781915	Prob(F-statistic)		0.000000

Appendix C Continued
Dependent Variable is CF

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.074783	0.021236	3.521574	0.0005
DlVi(t-l)	-0.450023	0.234381	-1.920049	0.0554
E	0.716715	0.042467	16.87688	0.0000
INV	0.594568	0.036631	16.23117	0.0000
NCA	0.123023	0.017732	6.938047	0.0000
R-squared	0.768807	Mean dependent var		0.482598
Adjusted R-squared	0.766950	S.D. dependent var		0.678902
S.E. of regression	0..327742	Akaike info criterion		-2.221168
Sum squared resid	53.49249	Schwarz criterion		-2.179214
Log likelihood	-150.1023	F-statistic		414.0115
Durbin-Watson stat	1 .440969	Prob(F-statistic)		0.000000

Appendix C Continued
Dependent Variable is **INV**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.134285	0.020399	6.582775	0.0000
CF	0.581911	0.035851	16.23117	0.0000
DlVi(t-l)	-0.095758	0.232690	-0.411524	0.6809
E	-0.076151	0.052564	-1.448738	O. 1480
NCA	-0.092335	0.017898	-5.158911	0.0000
R-squared	0.528222	Mean dependent var		0.346874
Adjusted R-squared	0.524432	S.D. dependent var		0.470168
S.E. of regression	0..324235	Akaike info criterion		-2.242685
Sum squared resid	52.35380	Schwarz criterion		-2.200731
Log likelihood	-144.6908	F-statistic		139.3952
Durbin-Watson stat	1.276634	Prob(F-statistic)		0.000000

***i.** **<£^Gfr **€ **tsr*/3 *<*1

Appendix C Continued
Dependent Variable is **NCA**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.212207	0.051002	4.160750	0.0000
CF	0.716450	0.103264	6.938047	0.0000
DlVi(t-l)	2.859596	0.553055	5.170550	0.0000
E	-0.368568	0.127425	-2.892435	0.0040
1NV	-0.549426	0.106500	-5.158911	0.0000
R-squared	0.196920	Mean dependent var		0.469422
Adjusted R-squared	0.190469	S.D. dependent var		0.879051
S.E. of regression	0.790917	Akaike info criterion		-0.459234
Sum squared resid	311.5236	Schwarz criterion		-0.417280
Log likelihood	-593.2287	F-statistic		30.52811
Durbin-Watson stat	0.827047	Prob(F -statistic)		0.000000

Appendix D
Regression Results for Model with DYD as Dividend Policy Factor

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.015576	0.008103	1.922311	0.0551
CF	0.076016	0.016890	4.500754	0.0000
DlVi(t-l)	0.247698	0.088666	2.793597	0.0054
E	0.183686	0.020068	9.153109	0.0000
INV	-0.062316	0.017072	-3.650133	0.0003
NCA	0.001210	0.006999	0.172861	0.8628
R-squared	0.587072	Mean dependent var		0.092385
Adjusted R-squared	0.582917	S.D. dependent var		0.191273
S.E. of regression	0.123528	Akaike info criterion		-4.170716
Sum squared resid	7.583820	Schwarz criterion		-4.120371
Log likelihood	341.2091	F-statistic		141.3197
Durbin-Watson stat	1.806393 .	Prob(F-statistic)		0.000000

Appendix D Continued

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.005718	0.009678	0.590843	0.5549
CF	0.074702	0.016863	4.429873	0.0000
Dl	0.020601	0.011120	1.852628	0.0645
DlVi(t-l)	0.241337	0.088517	2.726458	0.0066
E	0.183859	0.020019	9.184031	0.0000
INV	-0.063290	0.017039	-3.714472	0.0002
NCA	0.001979	0.006994	0.282922	0.7774
R-squared	0.589909	Mean dependent var		0.092385
Adjusted R-squared	0584949	S.D. dependent var		0.191273
S.E. of regression	0.123227	Akaike info criterion		-4.173636
Sum squared resid	7.531702	Schwarz criterion		-4.114900
Log likelihood	342.9434	F-statistic		118.9148
Durbin-Watson stat	1.812221 .	Prob(F-statistic)		0.000000

Appendix D Continued

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.009859	0.010381	0.949771	0.3427
CF	0.078380	0.017105	4.582276	0.0000
D2	0.010056	0.011409	0.881347	0.3786
DlVi(t-l)	0.249413	0.088707	2.811633	0.0051
E	0.179875	0.020533	8.760179	0.0000
INV	-0.062206	0.017077	-3.642750	0.0003
NCA	0.001743	0.007026.	0.248105	0.8042
R-squared	0.587717	Mean dependent var		0.092385
Adjusted R-squared	0.582730	S.D. dependent var		0.191273
S.E. of regression	0.123556	Akaike info criterion		-4.168305
Sum squared resid	7.571961	Schwarz criterion		-4.109569
Log likelihood	341.6027	F-statistic		117.8430
Durbin-Watson stat	1 .806936	Prob(F-statistic)		0.000000

Appendix D Continued
Agriculture

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.015767	0.008140	1 .936925	0.0533
CF	0.076218	0.016921	4.504246	0.0000
D3	-0.010929	0.039866	-0.274135	0.7841
DlVi(t-l)	0.247922	0.088753	2.793402	0.0054
E	0.183509	0.020097	9.131121	0.0000
INV	-0.062160	0.017098	-3.635554	0.0003
NCA	0.001002	0.007046	0.142173	0.8870
R-squared	0.587134	Mean dependent var		0.092385
Adjusted R-squared	0:582140	S.D. dependent var		0.191273
S.E. of regression	0.123643	Akaike info criterion		-4.166892
Sum squared resid	7.582671	Schwarz criterion		-4.108156
Log likelihood	341.2472	F-statistic		117.5598
Durbin- Watson stat	1.806751 .	Prob(F-statistic)		0.000000

Appendix D Continued

Automobile

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.015828	0.008176	1 .935965	0.0534
CF	0.076026	0.016906	4.497086	0.0000
D3	-0.010182	0.041681	-0.244279	0.8071
DlVi(t-l)	0.247936	0.088756	2.793468	0.0054
E	0.183663	0.020087	9.143204	0.0000
INV	-0.062471	0.017100	-3.653222	0.0003
NCA	0.001144	0.007010.	0.163239	0.8704
R-squared	0.587121	Mean dependent var		0.092385
Adjusted R-squared	0.582127	S.D. dependent var		0.191273
S.E. of regression	0.123645	Akaike info criterion		-4.166860
Sum squared resid	7.582907	Schwarz criterion		-4.108125
Log likelihood	341.2393	F-statistic		117.5536
Durbin-Watson stat	1.803917	Prob(F-statistic)		0.000000

Appendix D Continued

Banking

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.011733	0.008494	1.381205	0.1678
CF	0.078776	0.016970	4.641970	0.0000
D3	0.020949	0.014064	1.489577	0.1370
DlVi(t-l)	0.253341	0.088639	2.858135	0.0044
E	0.177902	0.020416	8.713723	0.0000
INV	-0.063173	0.017061	-3.702747	0.0002
NCA	0.000241	0.007020.	0.034331	0.9726
R-squared	0.588911	Mean dependent var		0.092385
Adjusted R-squared	0.583938	S.D. dependent var		0.191273
S.E. of regression	0.123377	Akaike info criterion		-4.171204
Sum squared resid	7.550045	Schwarz criterion		-4.112468
Log likelihood	342.3317	F-statistic		118.4251
Durbin-Watson stat	1.809873	Prob(F-statistic)		0.000000

Appendix D Continued

Breweries

Variable	Coefficient	**Std.** Error	**t-Statistic**	Prob.
C	0.015603	0.008260	1.889088	0.0595
CF	0.076008	0.016914	4.493851	0.0000
D3	-0.000496	0.029120	-0.017029	0.9864
DlVi(t-l)	0.247679	0.088762	2.790363	0.0055
E	0.183698	0.020102	9.138367	0.0000
INV	-0.062336	0.017131	-3.638876	0.0003
NCA	0.001213	0.007008	0.173064	0.8627
R-squared	0.587072	Mean dependent var		0.092385
Adjusted R-squared	0.582077	S.D. dependent var		0.191273
S.E. of regression	0.123653	Akaike info criterion		-4.166741
Sum squared resid	7.583815	Schwarz criterion		-4.108005
Log likelihood	341.2092.	F-statistic		117.5296
Durbin-Watson stat	1.806413	Prob(F -statistic)		0.000000

Appendix D Continued

Building Materials

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.016263	0.008236	1.974586	0.0489
CF	0.075706	0.016915	4.475578	0.0000
D3	-0.018960	0.039778	-0.476642	0.6338
DlVi(t-l)	0.244764	0.088948	2.751747	0.0061
E	0.184427	0.020144	9.155500	0.0000
INV	-0.062769	0.017112	-3.668143	0.0003
NCA	0.001239	0.007004	0.176836	0.8597
R-squared	0.587261	Mean dependent var		0.092385
Adjusted R-squared	0:582268	S.D. dependent var		0.191273
S.E. of regression	0.123624	Akaike info criterion		-4.167198
Sum squared resid	7.580347	Schwarz criterion		-4.108462
Log likelihood	341.3243	F-statistic		117.6212
Durbin-Watson stat	1.806232.	Prob (F-statistic)		0.000000

Appendix D Continued

Chemicals and Paints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.015307	0.008167	1.874195	0.0615
CF	0.076146	0.016912	4.502556	0.0000
D3	0.011681	0.041789	0.279522	0.7800
DlVi(t-l)	0.248127	0.088762	2.795423	0.0054
E	0.183511	0.020097	9.131494	0.0000
INV	-0.062120	0.017103	-3.632225	0.0003
NCA	0.001089	0.007019	O. 155122	0.8768
R-squared	0.587137	Mean dependent var		0.092385
Adjusted R-squared	0.582142	S.D. dependent var		0.191273
S.E. of regression	0.123643	Akaike info criterion		-4.166898
Sum squared resid	7.582625	Schwarz criterion		-4.108162
Log likelihood	341.2487	F-statistic		117.5610
Durbin-Watson stat	1.807062.	Prob (F-statistic)		0.000000

Appendix D Continued

Computers and Office Equipment

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.015326	0.008110	1.889836	0.0594
CF	0.078407	0.017109	4.582646	0.0000
D3	0.037908	0.042982	0.881962	0.3782
DlVi(t-l)	0.242733	0.088864	2.731496	0.0065
E	0.183879	0.020074	9.160124	0.0000
INV	-0.066061	0.017596	-3.754299	0.0002
NCA	0.001216	0.007000.	0.173750	0.8621
R-squared	0.587718	Mean dependent var		0.092385
Adjusted R-squared	0.582731	S.D. dependent var		0.191273
S.E. of regression	0.123556	Akaike info criterion		-4.168307
Sum squared resid	7.571945	Schwarz criterion		-4.109571
Log likelihood	341.6032	F-statistic		117.8434
Durbin-Watson stat	1.805508.	Prob (F-statistic)		0.000000

Appendix D Continued

Conglomerates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.019151	0.008295	2.308890	0.0214
CF	0.075162	0.016851	4.460491	0.0000
D3	-0.039521	0.020661	-1.912824	0.0563
DlVi(t-l)	0.240775	0.088504	2.720496	0.0067
R	0.186132	0.020055	9.280837	0.0000
INV	-0.064018	0.017050	-3.754723	0.0002
NCA	0.001981	0.006992	0.283284	0.7771
R-squared	.0.590095	Mean dependent var		0.092385
Adjusted R-squared	0.585137	S.D. dependent var		0.191273
S.E. of regression	0.123199	Akaike info criterion		-4.174090
Sum squared resid	7.528285	Schwarz criterion		-4.115354
Log likelihood	343.0576	F-statistic		119.0063
Durbin-Watson stat	1.817121	Prob (F-statistic)		0.000000

Appendix D Continued

Construction

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.015993	0.008185	1 .954035	0.0513
CF	0.075499	0.016959	4.451778	0.0000
D3	-0.011128	0.029455	-0.377798	0.7057
DlVi(t-l)	0.249335	0.088849	2.806291	0.0052
E	0.183624	0.020086	9.141853	0.0000
INV	-0.061488	0.017227	-3.569248	0.0004
NCA	0.000935	0.007042.	0.132811	0.8944
R-squared	0.587190	Mean dependent var		0.092385
Adjusted R-squared	0.582197	S.D. dependent var		0.191273
S.E. of regression	0.123635	Akaike info criterion		-4.167028
Sum squared resid	7.581638	Schwarz criterion		-4.108292
Log likelihood	341.2815	F-statistic		117.5871
Durbin-Watson stat	1.808234.	Prob (F-statistic)		0.000000

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Appendix D Continued

Emerging Markets/Second Tier Securities

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.016229	0.008234	1.971058	0.0493
CF	0.076118	0.016905	4.502806	0.0000
D3	-0.013291	0.029026	-0.457909	0.6472
DlVi(t-l)	0.247589	0.088737	2.790140	0.0055
E	0.183940	0.020092	9.154994	0.0000
1NV	-0.062902	0.017134	-3.671236	0.0003
NCA	0.001101	0.007008.	0.157035	0.8753
R-squared	0.587246	Mean dependent var		0.092385
Adjusted R-squared	0.582253	S.D. dependent var		0.191273
S.E. of regression	0.123626	Akaike info criterion		-4.167163
Sum squared res id	7.580615	Schwarz criterion		-4.108427
Log likelihood	341.3154	F-statistic		117.6141
Durbin-Watson stat	1.807814.	Prob (F-statistic)		0.000000

Appendix D Continued

Food/Beverages and Tobacco

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.015661	0.008417	1.860748	0.0634
CF	0.076069	0.016964	4.484081	0.0000
D3	-0.000684	0.018159	-0.037672	0.9700
DlVi(t-l)	0.248050	0.089247	2.779377	0.0057
E	0.183633	0.020138	9.118919	0.0000
INV	-0.062411	0.017273	-3.613255	0.0003
NCA	0.001179	0.007054	0.167134	0.8673
R-squared	0.587073	Mean dependent var		0.092385
Adjusted R-squared	0.582078	S.D. dependent var		0.191273
S.E. of regression	0.123652	Akaike info criterion		-4.166743
Sum squared resid	7.583798	Schwarz criterion		-4.108007
Log likelihood	341.2098	F-statistic		117.5301
Durbin-Watson stat	1.806606.	**Prob** (F-statistic)		0.000000

Appendix D Continued

Healthcare

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.015423	0.008256	1.867957	0.0624
CF	0.076224	0.017034	4.474699	0.0000
1)3	0.002846	0.028565	0.099626	0.9207
DlVi(t-l)	0.247881	0.088774	2.792279	0.0054
E	0.183525	0.020153	9.106794	0.0000
INV	-0.062334	0.017090	-3.647346	0.0003
NCA	0.001153	0.007029.	0.164016	0.8698
R-squared	0.,587080	Mean dependent var		0.092385
Adjusted R-squared	0.582085	S.D. dependent var		0.191273
S.E. of regression	0.123651	Akaike info criterion		-4.166760
Sum squared resid	7.583668	Schwarz criterion		-4.108024
Log likelihood	341.2141	F-statistic		117.5335
Durbin-Watson stat	1.806288	Prob (F-statistic)		0.000000

Appendix D Continued

Industrial Domestic Products

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.016602	0.008150	2.037095	0.0422
CF	0.081548	0.017561	4.643794	0.0000
D3	-0.027974	0.024407	-1.146133	0.2523
DlVi(t-l)	0.250227	0.088666	2.822140	0.0050
B	0.178529	0.020560	8.683290	0.0000
INV	-0.063651	0.017107	-3.720826	0.0002
NCA	0.000184	0.007054 .	0.026083	0.9792
R-squared	0..588162	Mean dependent var		0.092385
Adjusted R-squared	0.583180	S.D. dependent var		0.191273
S.E. of regression	0.123489	Akaike info criterion		-4.169385
Sum squared resid	7.563787	Schwarz criterion		-4.110649
Log likelihood	341.8743	F-statistic		118.0597
Durbin-Watson stat	1.808226	Prob (F-statistic)		0.000000

Appendix D Continued

Insurance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.016703	0.008270	2.019665	0.0440
CF	0.075869	0.016900	4.489300	0.0000
D3	-0.011766	0.017064	-0.689550	0.4908
DlVi(t-l)	0.240504	0.089324	2.692487	0.0073
E	0.182888	0.020112	9.093450	0.0000
INV	-0.060247	0.017343	-3.473930	0.0006
NCA	0.002160	0.007137.	0.302661	0.7623
R-squared	0.587467	Mean dependent var		0.092385
Adjusted R-squared	0.582477	S.D. dependent var		0.191273
S.E. of regression	0.123593	Akaike info criterion		-4.167698
Sum squared resid	7.576556	Schwarz criterion		-4.108963
Log likelihood	341.4501	F-statistic		117.7214
Durbin-Watson stat	1.801147	Prob (F-statistic)		0.000000

Appendix D Continued

Packaging

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.015989	0.008116	1.970214	0.0494
CF	0.078521	0.017098	4.592437	0.0000
D3	-0.027922	0.029529	-0.945580	0.3448
DlVi(t-l)	0.246138	0.088691	2.775228	0.0057
E	0.181337	0.020223	8.966728	0.0000
INV	-0.062237	0.017074	-3.645076	0.0003
NCA	0.001380	0.007002	0.197082	0.8438
R-squared	0.587815	Mean dependent var		0.092385
Adjusted R-squared	0.582829	S.D. dependent var		0.191273
S.E. of regression	0.123541	Akaike info criterion		-4.168541
Sum squared resid	7.570173	Schwarz criterion		-4.109805
Log likelihood	341.6621	F-statistic		117.8904
Durbin-Watson stat	1.806262	Prob (F-statistic)		0.000000

Appendix D Continued

Petroleum

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.012088	0.008300	1 .456347	0.1459
CF	0.075428	0.016852	4.476019	0.0000
D3	0.038703	0.020926	1 .849530	0.0650
DIVi (t-1)	0.240318	0.088541	2.714197	0.0069
E	0.184669	0.020027	9.221235	0.0000
INV	-0.060774	0.017051	-3.564215	0.0004
NCA	0.002421	0.007012.	0.345294	0.7300
R-squared	0,589900	Mean dependent var		0.092385
Adjusted R-squared	0.584939	S.D. dependent var		0.191273
S.E. of regression	0.123228	Akaike info criterion		-4.173613
Sum squared resid	7.531874	Schwarz criterion		-4.114877
Log likelihood	342.9377	F-statistic		118.9102
Durbin- Watson stat	1.814700	Prob (F-statistic)		0.000000

Appendix D Continued

Printing and Publishing

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.013497	0.008181	1.649747	0.0996
CF	0.076064	0.016858	4.511976	0.0000
D3	0.047669	0.028258	1.686942	0.0922
Dlil(t-l)	0.239207	0.088645	2.698481	0.0072
E	0.184313	0.020034	9.199795	0.0000
INV	-0.060840	0.017063	-3.565571	0.0004
NCA	0.001348	0.006986'	0.192941	0.8471
R-squared	0.589427	Mean dependent var		0.092385
Adjusted R-squared	0.584461	S.D. dependent var		0.191273
S.E. of regression	0.123299	Akaike info criterion		-4.172461
Sum squared resid	7.540556	Schwarz criterion		-4.113725
Log likelihood	342.6479	F-statistic		118.6781
Durbin- Watson stat	1 .809444	Prob (F -statistic)		0.000000

Appendix D Continued

Textiles

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.016073	0.008144	1 .973572	0.0490
CF	0.075678	0.016908	4.475990	0.0000
D3	-0.025720	0.039817	-0.645937	0.5186
DlVi(t-l)	0.250719	0.088841	2.822094	0.0050
E	0.183389	0.020085	9.130534	0.0000
INV	-0.061621	0.017116	-3.600139	0.0004
NCA	0.000797	0.007032.	0.113400	0.9098
R-squared	0.587419	Mean dependent var		0.092385
Adjusted R-squared	0.582428	S.D. dependent var		0.191273
S.E. of regression	0.123601	Akaike info criterion		-4.167581
Sum squared resid	7.577445	Schwarz criterion		-4.108845
Log likelihood	341.4206	F-statistic		117.6979
Durbin-Watson stat	1.810333	Prob (F-statistic)		0.000000

Appendix E

Regression Results for Model with CD as Dividend Policy Factor

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.010840	0.013063	-0.829826	0.4070
CF	0.046614	0.027086	1 .720924	0.0859
DlVi(t-l)	-0.787901	0.144159	-5.465494	0.0000
E	0.166513	0.032290	5.156870	0.0000
INV	-0.010075	0.027369	-0.368107	0.7130
NCA	0.018253	0.011219	1.626996	0.1044
R-squared	0.164304	Mean dependent var		0.005046
Adjusted R-squared	O. 155688	S.D. dependent var		0.214565
S.E. of regression	0.197156	Akaike info criterion		-3.235378
Sum squared resid	18.85213	Schwarz criterion		-3.184098
Log likelihood	103.5865	F-statistic		19.07086
Durbin-Watson stat	2.788050	Prob (F-statistic)		0.000000

Appendix E Continued

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.005659	0.015619	-0.362353	0.7172
CF	0.047373	0.027133	1.745947	0.0815
Dl	-0.010933	0.018043	-0.605975	0.5448
DIVI(T-l)	-0.782842	0.144495	-5.417791	0.0000
E	0.166179	0.032315	5.142432	0.0000
[NV	-0.009566	0.027399	-0.349145	0.7271
NCA	0.017798	0.011252.	1.581778	O. 1144
R-squared	0.. 164937	Mean dependent var		0.005046
Adjusted R-squared	0.154585	S.D. dependent var		0.214565
S.E. of regression	0.197284	Akaike info criterion		-3.232063
Sum squared resid	18.83784	Schwarz criterion		-3.172236
Log likelihood	103.7727	F-statistic		15.93284
Durbin-Watson stat	2.789880	Prob (F-statistic)		0.000000

Appendix E Continued

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.008367	0.016748	-0.499564	0.6176
CF	0.045572	0.027469	1.659046	0.0978
D2	-0.004365	0.018470	-0.236339	0.8133
DlVi(t-l)	-0.788338	0.144312	-5.462751	0.0000
E	0.168147	0.033053	5.087255	0.0000
INV	-0.010101	0.027396	-0.368702	0.7125
NCA	0.018014	0.011276.	1.597639	0.1108
R-squared	0.. 164400	Mean dependent var		0.005046
Adjusted R-squared	0.154041	S.D. dependent var		0.214565
S.E. of regression	0.197348	Akaike info criterion		-3.231420
Sum squared resid	18.84996	Schwarz criterion		-3.171593
Log likelihood	103.6148	F-statistic		15.87075
Durbin-Watson stat	2.788171	Prob (F-statistic)		0.000000

Appendix E Continued

Agriculture

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.010761	0.013126	-0.819834	0.4127
CF	0.046695	0.027140	1 .720550	0.0860
D3	-0.004417	0.063655	-0.069384	0.9447
DlVi(t-l)	-0.787789	0.144316	-5.458760	0.0000
E	0.166439	0.032340	5.146488	0.0000
INV	-0.010011	0.027412	-0.365189	0.7151
NCA	0.018168	0.011298.	1.608153	O. 1 085
R-squared	0.164312	Mean dependent var		0.005046
Adjusted R-squared	0.153952	S.D. dependent var		0.214565
S.E. of regression	0.197358	Akaike info criterion		-3.231315
Sum squared resid	18.85195	Schwarz criterion		-3.171488
Log likelihood	103.5890	F-statistic		15.86057
Durbin-Watson stat	2.788145	Prob (F-statistic)		0.000000

Appendix E Continued

Automobile

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.011147	0.013183	-0.845585	0.3982
CF	0.046604	0.027113	1.718852	0.0863
D3	0.012199	0.066547	0.183319	0.8546
DlVi(t-l)	-0.788224	0.144314	-5.461877	0.0000
E	0.166542	0.032322	5.152581	0.0000
1NV	-0.009889	0.027415	-0.360717	0.7185
NCA	0.018334	0.011239.	1.631295	O. 1 035
R-squared	0.164362	Mean dependent var		0.005046
Adjusted R-squared	0.154002	S.D. dependent var		0.214565
S.E. of regression	0.197352	Akaike info criterion		-3.231374
Sum squared resid	18.85083	Schwarz criterion		-3.171547
Log likelihood	103.6036	F-statistic		15.86631
Durbin-Watson stat	2.789590	Prob (F-statistic)		0.000000

Appendix £ Continued

Banking

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.004498	0.013643	-0.329649	0.7418
CF	0.042032	0.027199	1 .545393	0.1229
D3	-0.036360	0.022957	-1 .583836	0.1139
DlVi(t-l)	-0.796753	0.144044	-5.531319	0.0000
E	0.176274	0.032823	5.370410	0.0000
INV	-0.008462	0.027345	-0.309462	0.7571
NCA	0.019919	0.011251.	1.770417	0.0773
R-squared	0.168613	Mean dependent var		0.005046
Adjusted R-squared	0.158306	S.D. dependent var		0.214565
S.E. of regression	0.196850	Akaike info criterion		-3.236474
Sum squared resid	18.75493	Schwarz criterion		-3.176647
Log likelihood	104.8556	F-statistic		16.35990
Durbin- Watson stat	2.789360	Prob (F-statistic)		0.000000

Appendix E Continued
Breweries

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.011717	0.013320	-0.879650	0.3795
CF	0.046894	0.027123	1.728918	0.0845
D3	0.016020	0.046500	0.344513	0.7306
DlVil(t-l)	-0.787316	0.144300	-5.456091	0.0000
E	0.166099	0.032341	5.135834	0.0000
INV	-0.009419	0.027460	-0.343009	0.7317
NCA	0.018158	0.011233	1.616510	0.1066
R-squared	0.164508	Mean dependent var		0.005046
Adjusted R-squared	O 154151	S.D. dependent var		0.214565
S.E. of regression	0.197335	Akaike info criterion		-3.231550
Sum squared resid	18.84751	Schwarz criterion		-3.171723
Log likelihood	103.6467	F-statistic		15.88328
Durbin-Watson stat	2.788242	Prob (F-statistic)		0.000000

Appendix E Continued

Building Materials

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.010851	0.013286	-0.816667	0.4145
CF	0.046618	0.027135	1.717990	0.0864
D3	0.000289	0.063529	0.004555	0.9964
DlVi(t-l)	-0.787855	0.144661	-5.446223	0.0000
E	0.166501	0.032423	5.135332	0.0000
INV	-0.010068	0.027440	-0.366902	0.7139
NCA	0.018253	0.011231.	1.625211	0.1048
R-squared	0.164304	Mean dependent var		0.005046
Adjusted R-squared	0.153944	S.D. dependent var		0.214565
S.E. of regression	0.197359	Akaike info criterion		-3.231305
Sum squared res id	18.85213	Schwarz criterion		-3.171478
Log likelihood	103.5865	F-statistic		15.85962
Durbin-Watson stat	2.788053	Prob (F-statistic)		0.000000

Appendix E Continued

Chemicals and Paints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.011227	0.013149	-0.853868	0.3936
CF	0.046748	0.027116	1.723986	0.0853
D3	0.019707	0.070640	0.278981	0.7804
DlVi(t-l)	-0.787594	0.144301	-5.458006	0.0000
E	0.166382	0.032324	5.147376	0.0000
INV	-0.009781	0.027415	-0.356792	0.7214
NCA	0.018064	0.011250	1.605612	0.1090
R-squared	0.164438	Mean dependent var		0.005046
Adjusted R-squared	O 154080	S.D. dependent var		0.214565
S.E. of regression	0.197343	Akaike info criterion		-3.231466
Sum squared resid	18.84910	Schwarz criterion		-3.171638
Log likelihood	103.6260	F-statistic		15.87513
Durbin-Watson stat	2.788271	Prob (F-statistic)		0.000000

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Appendix E Continued

Computers and Office Equipment

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.011046	0.013085	-0.844156	0.3990
CF	0.048364	0.027494	1.759056	0.0792
D3	0.027789	0.072696	0.382259	0.7024
DlVi(t-l)	-0.789232	0.144328	-5.468314	0.0000
E	0.166360	0.032320	5.147220	0.0000
INV	-0.012737	0.028265	-0.450647	0.6524
NCA	0.018160	0.011232.	1.616840	0.1066
R-squared	0,164556	Mean dependent var		0.005046
Adjusted R-squared	0.154199	S.D. dependent var		0.214565
S.E. of regression	0.197330	Akaike info criterion		-3.231607
Sum squared resid	18.84644	Schwarz criterion		-3.171780
Log likelihood	103.6606	F-statistic		15.88875
Durbin-Watson stat	2.787492	Prob (F-statistic)		0.000000

Appendix E Continued

Conglomerates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.010429	0.013433	-0.776390	0.4379
CF	0.046512	0.027124	1.714761	0.0870
D3	-0.004420	0.033133	-0.133411	0.8939
DlVi(-l)	-0.788682	0.144424	-5.460879	0.0000
E	0.166792	0.032390	5.149495	0.0000
INV	-0.010266	0.027434	-0.374199	0.7084
NCA	0.018339	0.011249	1.630310	0.1037
R-squared	0.164334	Mean dependent var		0.005046
Adjusted R-squared	0.153975	S.D. dependent var		0.214565
S.E. of regression	0.197356	Akaike info criterion		-3.231342
Sum squared resid	18.85144	Schwarz criterion		-3.171514
Log likelihood	103.5955	F-statistic		15.86316
Durbin-Watson stat	2.787906	Prob (F-statistic)		0.000000

Appendix E Continued

Construction

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.011819	0.013190	-0.896113	0.3706
CF	0.048051	0.027228	1.764769	0.0782
D3	0.026989	0.048398	0.557646	0.5773
DlVi(t-l)	-0.792365	0.144484	-5.484116	0.0000
E	0.166641	0.032313	5.157033	0.0000
INV	-0.012235	0.027661	-0.442337	0.6584
NCA	0.018908	0.011288	1.674993	0.0946
R-squared	0.164840	Mean dependent var		0.005046
Adjusted R-squared	0.154487	S.D. dependent var		0.214565
S.E. of regression	0.197296	Akaike info criterion		-3.231947
Sum squared resid	18.84003	Schwarz criterion		-3.172120
Log likelihood	103.7442	F-statistic		15.92163
Durbin-Watson stat	2.787020	Prob (F-statistic)		0.000000

Appendix E Continued

Emerging Markets/Second-Tier Securities

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.011173	0.013282	-0.841197	0.4007
CF	0.046566	0.027116	1.717284	0.0866
D3	0.006624	0.046362	0.142884	0.8864
DIVi(M)	-0.787870	0.144305	-5.459744	0.0000
E	0.166386	0.032334	5.145778	0.0000
INV	-0.009781	0.027473	-0.356022	0.7220
NCA	0.018310	0.011237	1.629356	0.1039
R-squared	0.164339	Mean dependent var		0.005046
Adjusted R-squared	0.153979	S.D. dependent var		0.214565
S.E. of regression	0.197355	Akaike info criterion		-3.231347
Sum squared resid	18.85134	Schwarz criterion		-3.171520
Log likelihood	103.5969	F-statistic		15.86368
Durbin-Watson stat	2.788012	Prob (F-statistic)		0.000000

Appendix E Continued

Food/Beverages and Tobacco

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	*-0.0 J 3474*	0.013592	-0.991263	0.3221
CF	0.045056	0.027190	1.657050	0.0982
D3	0.020614	0.029223	*0.705398*	*0.4809*
DiVi(t-l)	-0.797108	0.144823	-5.504005	*0.0000*
E	0.167924	0.032368	5.187941	*0.0000*
INV	*-0.007192*	0.027686	-0.259756	0.7952
NCA	0.019166	0.011299	1.696239	0.0905
R-squared	0.165162	Mean dependent var		*0.005046*
Adjusted R-squared	0.154813	S.D. dependent var		0.214565
S.E. of regression	0.197258	Akaike info criterion		-3.232332
Sum squared resid	18.83277	Schwarz criterion		-3.172505
Log likelihood	103.8388	F-statistic		15.95885
Durbin-Watson stat	2.788281	Prob (F-statistic)		0.000000

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Appendix E Continued

Healthcare

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.011807	0.013316	-0.886653	0.3757
CF	0.047909	0.027321	1.753577	0.0801
D3	0.017457	0.045619	0.382661	0.7021
DlVi(t-l)	-0.786772	0.144316	-5.451716	0.0000
E	0.165512	0.032424	5.104693	0.0000
INV	-0.010190	0.027395	-0.371978	0.7101
NCA	0.017905	0.011266.	1.589272	0.1127
R-squared	0.. 164556	Mean dependent var		0.005046
Adjusted R-squared	0.154200	S.D. dependent var		0.214565
S.E. of regression	0.197329	Akaike info criterion		-3.231607
Sum squared resid	18.84643	Schwarz criterion		-3.171780
Log likelihood	103.6608	F-statistic		15.88881
Durbin-Watson stat	2.788218	Prob (F-statistic)		0.000000

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Appendix E Continued

Industrial/Domestic Products

Variable	Coefficient	Std. EiTor	t-Statistic	Prob.
C	-0.010548	0.013158	-0.801646	0.4232
CF	0.048159	0.028202	1 .707625	0.0883
1)3	-0.007773	0.039043	-0. 199085	0.8423
DIVi (t-1)	-0.787099	0.144358	-5.452396	0.0000
E	0.165062	0.033133	4.981860	0.0000
INV	-0.010449	0.027460	-0.380504	0.7037
NCA	0.017902	0.011325.	1 .586058	0.1134
R-squared	0,164372	Mean dependent var		0.005046
Adjusted R-squared	0.154013	S.D. dependent var		0.214565
S.E. of regression	0.197351	Akaike info criterion		-3.231387
Sum squared resid	18.85059	Schwarz criterion		-3.171560
Log likelihood	103.6066	F-statistic		15.86752
Durbin-Watson stat	2.788402	Prob (F-statistic)		0.000000

Appendix E Continued

Insurance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.009463	0.013340	-0.709349	0.4784
CF	0.046522	0.027107	1.716229	0.0868
D3	-0.014204	0.027416	-0.518090	0.6046
DlVi(t-l)	-0.796332	0.145183	-5.485027	0.0000
E	0.165504	0.032373	5.112482	0.0000
INV	-0.007706	0.027768	-0.277505	0.7815
NCA	0.019375	0.011434.	1.694459	0.0908
R-squared	0.164767	Mean dependent var		0.005046
Adjusted R-squared	0.154413	S.D. dependent var		0.214565
S.E. of regression	0.197305	Akaike info criterion		-3.231859
Sum squared resid	18.84169	Schwarz criterion		-3.172032
Log likelihood	103.7226	F-statistic		15.91314
Durbin-Watson stat	2.788585	Prob (F-statistic)		0.000000

Appendix E Continued

Packaging

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.010499	0.013089	-0.802114	0.4229
CF	0.048758	0.027421	1.778116	0.0760
D3	-0.025070	0.048396	-0.518008	0.6047
DlVil(t-l)	-0.789228	0.144291	-5.469704	0.0000
E	0.164508	0.032545	5.054841	0.0000
INV	-0.009991	0.027390	-0.364775	0.7154
NCA	0.018430	0.011233	1.640714	0.1015
R-squared	0.164767	Mean dependent var		0.005046
Adjusted R-squared	0.154412	S.D. dependent var		0.214565
S.E. of regression	0.197305	Akaike info criterion		-3.231859
Sum squared resid	18.84169	Schwarz criterion		-3.172032
Log likelihood	103.7226	F-statistic		15.91313
Durbin-Watson stat	2.788403	Prob (F-statistic)		0.000000

Appendix E Continued

Petroleum

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.012827	0.013411	-0.956481	0.3393
CF	0.046263	0.027107	1.706675	0.0885
D3	0.022468	0.033951	0.661778	0.5084
DlVi(t-l)	-0.792798	0.144432	-5.489056	0.0000
E	0.167182	0.032324	5.172057	0.0000
FNV	-0.009238	0.027414	-0.336971	0.7363
NCA	0.018964	0.011277	1 .681674	0.0933
R-squared	0.165059	Mean dependent var		0.005046
Adjusted R-squared	0.154709	S.D. dependent var		0.214565
S.E. of regression	0.197270	Akaike info criterion		-3.232209
Sum squared resid	18.83509	Schwarz criterion		-3.172382
Log likelihood	103.8086	F-statistic		15.94695
Durbin-Watson stat	2.788585	Prob (F-statistic)		0.000000

Appendix E Continued

Printing and Publishing

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.012181	0.013226	-0.920986	0.3575
CF	0.046658	0.027102	1.721562	0.0858
D3	0.030020	0.045242	0.663545	0.5073
DlVi(t-l)	-0.793553	0.144494	-5.491953	0.0000
E	0.166931	0.032314	5.165864	0.0000
INV	-0.009145	0.027420	-0.333509	0.7389
NCA	0.018354	0.011227.	1.634860	0.1027
R-squared	0.165063	Mean dependent var		0.005046
Adjusted R-squared	0.154713	S.D. dependent var		0.214565
S.E. of regression	0.197270	Akaike info criterion		-3.232214
Sum squared resid	18.83500	Schwarz criterion		-3.172387
Log likelihood	103.8097	F-statistic		15.94742
Durbin- Watson stat	2.788165	Prob (F-statistic)		0.000000

Appendix E Continued

Textiles

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.011461	0.013133	-0.872688	0.3833
CF	0.047037	0.027121	1 .734342	0.0835
D3	0.031451	0.063596	0.494539	0.6211
DlVi(t-l)	-0.791861	0.144494	-5.480250	0.0000
E	0.166904	0.032324	5.163411	0.0000
INV	-0.010937	0.027446	-0.398500	0.6904
NCA	0.018768	0.011276'	1.664439	0.0967
R-squared	0.164726	Mean dependent var		0.005046
Adjusted R-squared	0.154371	S.D. dependent var		0.214565
S.E. of regression	0.197309	Akaike info criterion		-3.231810
Sum squared resid	18.84261	Schwarz criterion		-3.171983
Log likelihood	103.7105	F-statistic		15.90839
Durbin-Watson stat	2.787383	Prob (F-statistic)		0.000000

Appendix F

List of the Companies Quoted On The Nigerian Stock Exchange As At 2003

S/No.	Name Of Company
1.	AG Leventis (Nigeria) PLC
2.	Aba Textile Mills PLC
3.	Aboseldehyde Labs. PLC
4.	Abplast Products PLC
5.	Academy Press PLC
(>.	Adswitch PLC
7.	Afprint Nigeria PLC
8.	African Express Bank.
9.	African Petroleum PLC Afrik
10.	Pharmaceutical PLC
11.	Afroil PLC
12.	Agip (Nigeria) PLC
13.	A1ICO Insurance PLC
14.	Aluminium Man. of Nig. PLC
15.	Aluminium Extusion Ind. PLC
16.	Amicble Assurance PLC
17.	Anino International PLC
18.	Arbico PLC
19.	Asaba Textile **Mill** PLC
20.	Ashaka Cement PLC
21.	Atlas Nigeria PLC
22.	Aviation Development Co. PLC
23.	Baico Insurance PLC
24.	Ben PLC
25.	Benue Cement Companny PLC
26.	Berger Paints PLC
27.	Beta Glass Company PLC
28.	Beverages (W.A) PLC
29.	Bewac (Nig.) PLC
30.	Blackwood Hodge (Nig.) PLC
31.	C.F.A.O. Nigeria PLC
32.	Cadbury Nigeria PLC
33.	Capital Oil PLC
34.	Cappa & D'alberto PLC
35.	Cement Co. of North. Nig
36.	Ceramic Man. Nig. PLC
37.	Champion Beweries PLC
38.	Chartered Bank PLC
39.	Chellarams PLC
40.	Cap PLC
41.	Christlieb PLC
42.	Cmb Packaging PLC
43.	Confidence Insurance PLC

44. Cornerstorn Insurance PLC
45. Cooporative Bank PLC
46. Cooporative Dev. Bank PLC
47. Costain (W.A) PLC
48. Crusader Insurance PLC
49. Cutix PLC
50. Daily Times PLC
51. D.N. Meyer PLC
52. Dumez Nigeria PLC
53. Dunlop Nigeria PLC
54. Ellah Lakes PLC
55. Enpee Industries PLC
56. Eternal Oil & Gases PLC
57. Evans Medical Nigeria PLC
58. Ferdinald Oil Mills PLC
59. First Capital Inv. Trust PLC
60. First Aliminium Nig. PLC
61. First Atlantic Bank PLC
62. First Bank of Nig. PLC
63. Flexible Packaging PLC
64. Flour Mills Nigeria PLC
65. Footwear & Acce. Man. PLC
66. Foremost Dairies PLC
67. Fsb International Bank PLC
68. G.CappaPLC
69. Golden Guinea Brew. PLC
70. Grommac Industries PLC
71. Guaranty Trust Bank PLC
72. Guinea Insurance PLC
73. Guinea Nigeria PLC
74. Hallmark Bank PLC
75. Hallmark Paper Products PLC
16. Imb International Bank PLC
77. Incar Nigeria PLC
78. Industial Gases PLC
79. Inland Bank (Nigeria) PLC
80. Interlinked Technologies PLC
81. International Beweries PLC
82. Intra Motors PLC
83. **I.P.W.A.** PLC
84. John Holt PLC
85. Jos Int. Beweries PLC
86. Juli PLC
87. Julius Berger Nigeria PLC
88. Krabo Nigeria PLC
89. Lasaco Assurance PLC
90. Law Union & Rock Ins. PLC
91. Lennards (Nig.) PLC

Appendix F Continued

92. Liberty Bank PLC
93. Lion Bank of Nig. PLC
94. Livestock Feeds PLC
95. Liz-Olofin & Company PLC
96. Manny Bank PLC
97. Maureen Laboratories PLC
98. May & Baker PLC
99. M-Net/Supersports
100. Mobil Oil Nigeria PLC
101. Morison Industries PLC
102. Mutual Benefits Ass. PLC
103. NCR PLC
104. N.E.M. Insurance Co. PLC
105. Nal Merchant Bank PLC
106. National Salt Co. Nig. PLC
107. National Oil Company PLC
108. Neimeth Inter. Pharma. PLC
109. Newpark PLC
110. Nigerian International Debt
111. Funds PLC
112. Nig. Sew. Mach. Man. Co. PLC
113. Nig. Yeast & Alcohol Man. PLC
114. Nig. Enamelware Comp PLC
115. Nig. Textiles Mills PLC
116. Nig. Bottling Co. PLC
117. Nig. Energy Sector Fund PLC
118. Nigerian Wire Ind. PLC
119. Nig. Bereweries PLC
120. Nig. Lamps Ind. PLC
121. Nig. Ropes PLC
122. Nig. Lamps PLC
123. Nig. Gentian Chemicals PLC
124. Nig. Cement Co. PLC
125. Nig. Wire & Cable PLC
126. Northern Nig. Flour Mills
127. Okitipupa Oil Palm PLC
128. Okomu Oil Palm PLC
129. Oluwa Glass Co. PLC
130. Omega Bank PLC
131. Onwuka Hi-Tek Industries PLC
132. P.S Mandrides & Co. PLC
133. P.Z. Industries PLC
134. Pharma-Deko PLC
135. Poly Products (Nig) PLC
136. Premier Paints PLC
137. Premier Breweries PLC
138. Prestige Assurance Co. PLC
139. R. T. Briscoe

RAK Unity Pet. Comp. PLC
Rietzcot Nigeria PLC
Roads Nigeria PLC
Rokana Industries PLC
Royal Exchange Assurance
S. C. O. A. Nigeria PLC
Savanah Bank Nig. PLC
Security Assurance PLC
Seven-Up Bottling Co. PLC
Smithkline Beecham Nig. PLC
Smurfit Print Nigeria PLC
Stokvis Nigeria PLC
Studio Press (Nig.) PLC
Sun Insurance Nigeria PLC
Tate Industries PLC
Texaco Nigeria Pic
The Niger Insurance Co. PLC
Thomas Wyatt Nigeria PLC
Total Nigeria PLC
Towerage Insurance PLC
Trade Bank PLC
Trans International Bank PLC
Trans-Nationwide Express PLC
Tripple Gee And Company PLC
Tropical Pet. Products PLC
U. A. C. N. PLC
U. A. C. N. Property Dev. Co. PLC
U. T. C. Nigeria PLC
Udeofson Garment Fact. PLC
UNIC Insurance PLC
Uniliver Nigeria PLC
Union Ventures & Pet. PLC
Union Dicon Salt PLC
Union Ventures & Petroleum
Unipetrol Nigeria PLC
United Bank For Africa PLC
United Nigeria Textiles PLC
University Press PLC
Van Leer Containers (Nig)
Vitafoam Nig. PLC
Vono Products PLC
W. A. Glass Industries PLC
W. A. Portland Co. PLC
W. A. Alum. Products PLC
Wema Bank PLC
West African Prov. Ins. PLC
Wiggins Teape Nigeria PLC

Appendix G

List of le Firms

S/No	Name Of Company	Industry/Sector
1.	Okomu Oil Palm Co. PLC	Agriculture
2.	Dunlop Nig. Pic	Automobile & Tyre
3.	Cooperative Dev. Bank PLC	Banking
4	First Bank F Nig. PLC	Banking
5.	FSB International Bank PLC	Banking
6.	Guaranty Trust Bank PLC	Banking
7.	Inland Bank (Nig) **PLC**	Banking
X.	NAL Bank of Nige. PLC	Banking
^.	Trade Bank PLC	Banking
10.	Trans International Bank PLC	Banking
11.	UBA PLC	Banking
12.	Union Bank of Nig. PLC	Banking
13.	WEMA Bank PLC	Banking
14.	Guiness Nig. PLC	Breweries
15.	Nigerian Breweries PLC	Breweries Pic
16.	Ashaka Cement PLC	Building Materials
17.	DN Meyer PLC	Chemical & Paints
18.	Tripple Gee & Co. PLC	Computer & office Equip.
19.	CFAO (Nig) PLC	Conglomerates
20.	Paterson Zochonis Inds. PLC	Conglomerates
21.	UACofNig. PLC	Conglomerates
22.	SCOA Nig. PLC	Conglomerates
23.	CAPPA & D'Alberto PLC	Construction
24.	Julius Berger Nig. PLC	Construction
25.	ADSWTCH PLC	Emerging Markets/2nd Tier Securities
26.	CUTIX PLC	Emerging Markets/2nd Tier Securities
27.	7-UP Bottling Co. PLC	Food/Beverages & Tobacco
28.	Nestle Nig. PLC	Food/Beverages & Tobacco
29.	P. S. Mandrides PLC	Food/Beverages & Tobacco
30.	CadburyNig. PLC	Food/Beverages & Tobacco
31.	Flour Mills Nig. PLC	Food/Beverages & Tobacco
32.	Northern Nig. Flour Mills PLC	Food/Beverages & Tobacco
33.	MAY & BAKER Nig. PLC	Health Care
34.	Morison Industries PLC	Health Care
35.	BOC Gases PLC	Industrial/Domestic Products
36	Nigerian Enamel Ware PLC	Industrial/Domestic Products
37.	V1TAFOAM Nig. PLC	Industrial/Domestic Product
38.	A1ICO Insurance PLC	Insurance
39.	CRUSADER Ins. (Nig) PLC	Insurance
40.	LASACO Assurance PLC	Insurance
41.	Law Union & Rock Ins (Nig) PLC	Insurance
42.	Niger Insurance Co. PLC	Insurance
43.	Prestige Assurance PLC	Insurance
44.	Royal Exchange Assur. (Nig) PLC	Insurance

Appendix G Continued

45.	Avon Crown Caps & Containers Nig. PLC	Packaging
46.	Beta Glass PLC	Packaging
47.	Etema Oil & Gas Co. PLC	Petroleum Marketing
48.	Mobil Oil Nig. PLC	Petroleum Marketing
49.	TOTAL Nig. PLC	Petroleum Marketing
50.	UNlPETROLNig. PLC	Petroleum Marketing
51.	Longman Nig PLC	Printing & publishing
52.	University Press PLC	Printing & publishing
53.	ENPEE Industries	Textiles